U.S. Department of Justice
Drug Enforcement Administration
*Office of Compliance and Regulatory Affairs*

Fall 1981

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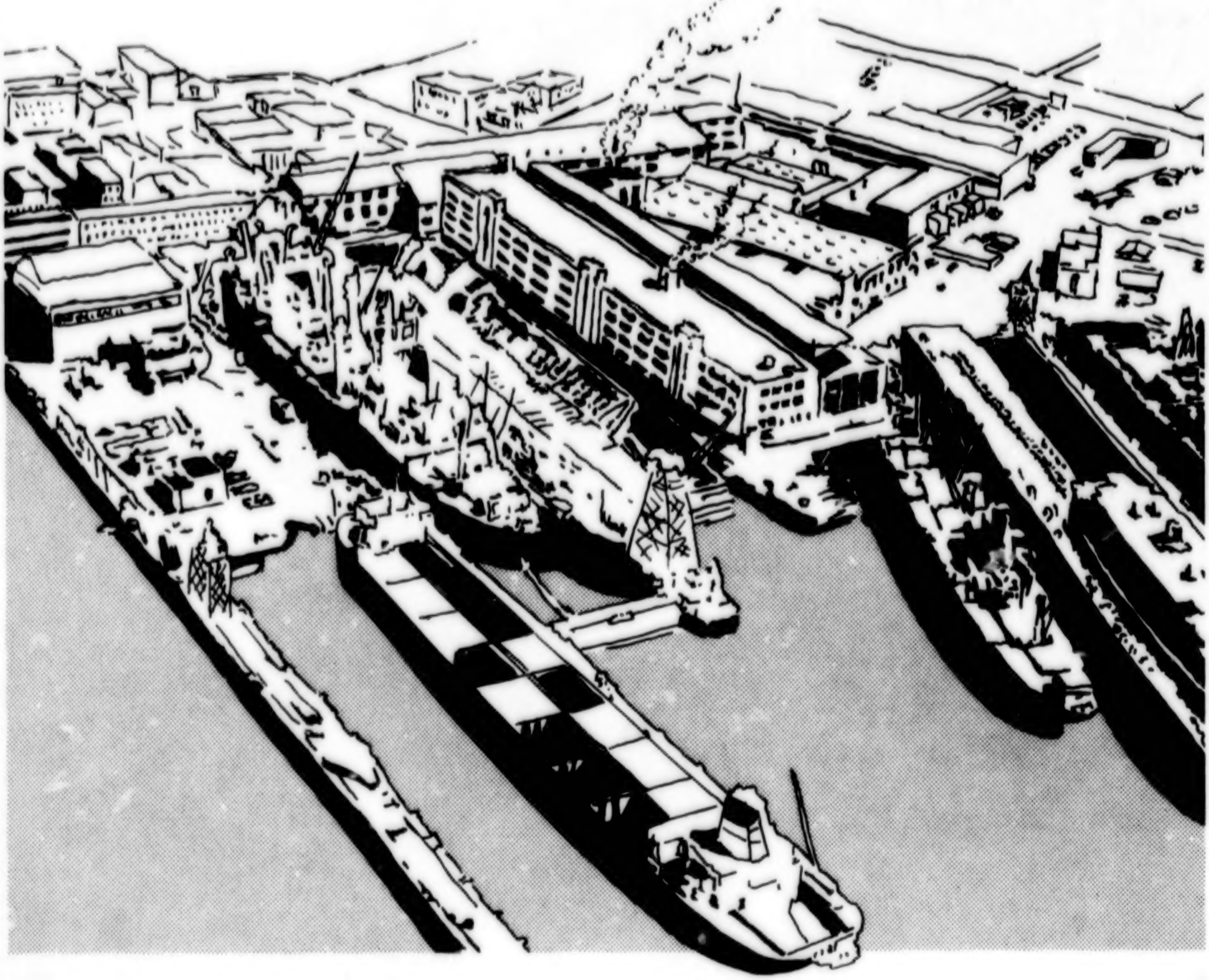
# Customs Drug & Chemical Watch Manual

## *Drugs, Chemical Precursors, and Chemical Solvents & Reagents*



*Prepared by:*
U.S. Department of Justice
Drug Enforcement Administration
Office of Compliance and Regulatory Affairs
202/633-1172

II

# Customs Drug & Chemical Watch Manual

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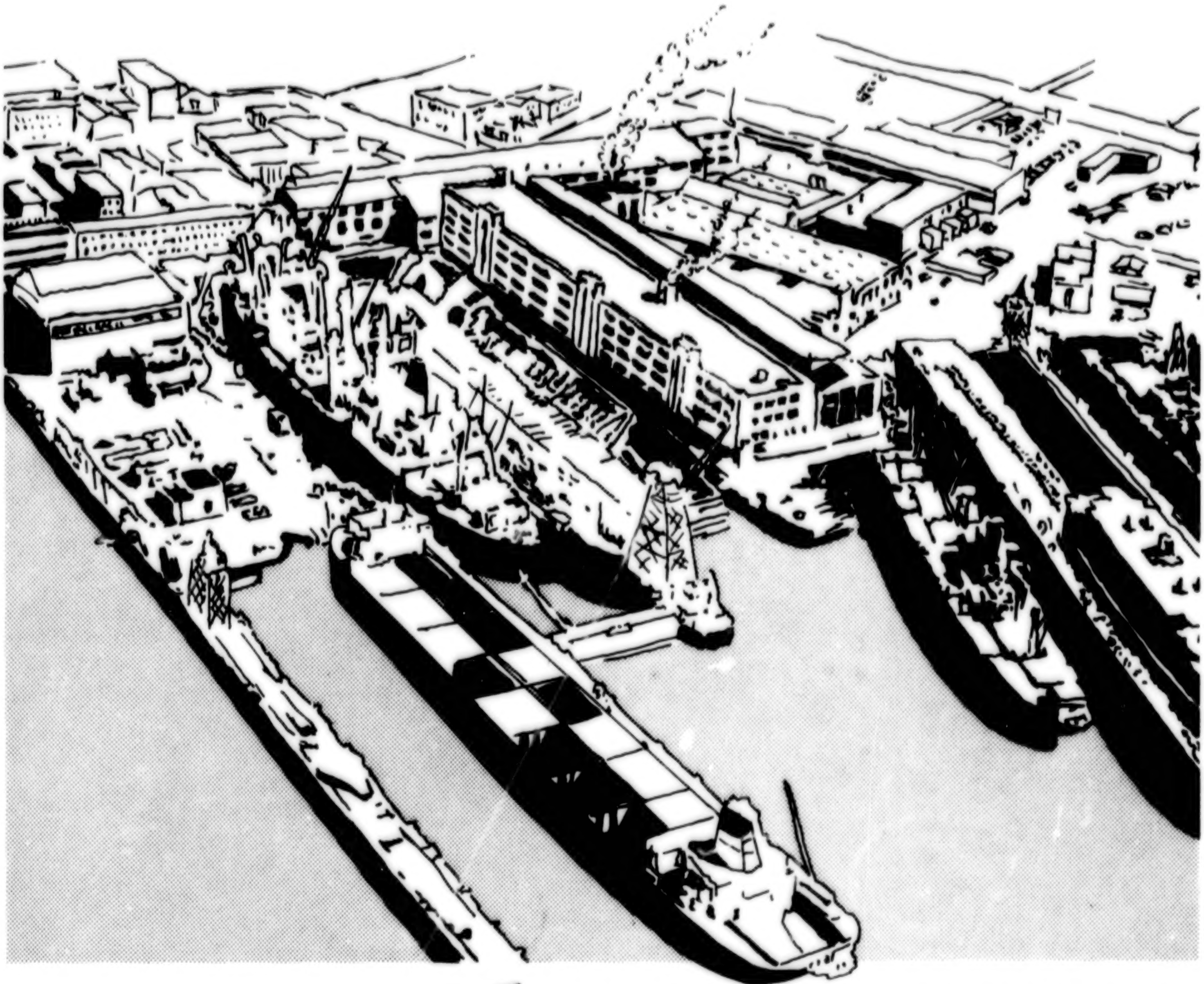

## Cooperative Efforts of
## U.S. Customs Service and the
## DEA Office of Compliance and Regulatory Affairs

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### *Interdiction of*
### *Diverted Pharmaceuticals and Chemicals*
### *in International Commerce*

The United States Customs Service and Drug Enforcement Administration each have responsibilities to undertake measures to reduce the availability of illicit drugs. This has traditionally involved both agencies in different aspects of suppressing the international movement of controlled drugs and their precursors. Recently, the diversion of drugs and precursor chemicals from international commerce has greatly increased. This is now the principal source of illicit methaqualone in the United States and is the fastest growing abuse problem among adolescents at the present time. Other controlled drugs are known to be diverted in a similar manner. Therefore, we are increasingly concerned with the problem of drug abuse which results from: (1) diversion of drugs which are under stringent U.S. controls but are not given high international attention; (2) diversion of drugs under limited control; and (3) easy availability of non-controlled chemicals including precursors, solvents, or reagents used in the manufacture of highly abusable drugs by clandestine laboratory operators.

Efforts of our agencies must be joined to attack the problem and generate an increased awareness of these problem substances when trafficked in international commerce. Drugs and chemicals which require increased attention by Customs and drug enforcement personnel are described in the following manual. The chemicals listed are essential for the clandestine manufacture of drugs of abuse. As part of the U.S. drug enforcement effort, special attention will be given by U.S. Customs officers, as well as international Customs agencies, in the transit of these substances in cases of suspicious orders. The drug section includes drugs controlled under the U.S. Controlled Substances Act (CSA). Lesser controls imposed by other Nations for some of these drugs, however, increase the likelihood of their diversion and eventual trafficking in international commerce for illicit purposes. The drugs listed are highly abusable substances which require greater enforcement efforts by the U.S. Customs Service and DEA.

*September 1981*

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The New York Harbor is a complex web of activity. Cargo from all parts of the globe and the magnitude of international commerce hinder the detection of illicit activity.

# Preface

The diversion and trafficking of legitimately produced pharmaceuticals and precursor chemicals used in the manufacture of drugs of abuse is a major problem affecting the United States.

The purpose of this manual is to provide basic technical and investigative guidance to assist Customs personnel in the identification and interdiction of illicit shipments of diverted pharmaceuticals and chemicals in international commerce which are destined for the United States illicit drug market.

Many large manufacturers of pharmaceuticals and chemicals are located in other Nations where regulatory controls are often quite different from those of the United States. Several drugs which are tightly controlled in the United States have not been considered a problem in other countries and therefore have not been or have only recently been controlled. These conditions afford drug traffickers opportunities for diversion.

## Cooperative Measures

The problem of diversion and trafficking of legitimately produced pharmaceuticals and precursor chemicals used in the manufacture of drugs of abuse requires immediate attention and cooperative efforts by the United States Customs Service and the Drug Enforcement Administration. This manual is designed to assist the United States Customs Service in identifying suspect shipments of pharmaceuticals and precursor chemicals and procedures for coordinating activity with the appropriate DEA field offices.

## Notification Procedures

The following procedures provide general guidance to Customs officials in reporting to DEA offices suspicious shipments of pharmaceuticals and precursor chemicals. The procedures are not intended to supersede or replace reporting requirements established by the United States Customs Service.

In the case of identification of suspicious shipments, the responsible official should contact the nearest DEA office, specifically the DEA Compliance Group or Precursor Liaison Officer. General procedures for reporting controlled substances and non-controlled substances are described below.

### *Suspect Shipments of Controlled Substances*

Unless authorized by the DEA, shipments of controlled substances entering or transiting through the United States are subject to seizure under the provisions of the Controlled Substances Act (CSA).

Customs officials should be alert to shipments manifested or labeled as "harmless chemicals", "medicines", "pharmaceuticals", etc., from European countries and destined for Central and South American countries. The DEA should be contacted if there is any doubt as to the legitimacy of the shipment or contents.

### *Suspect Shipments of Precursor Chemicals*

As non-controlled substances, few, if any, prohibitions apply to restrict the movement of precursor chemicals. Information obtained by Customs officials regarding the movement of precursor chemicals entering and transiting through the United States is of vital interest to the DEA's efforts in locating domestic and foreign clandestine laboratory operations.

The DEA is primarily interested in the movement of precursor chemicals to individuals or firms that do not appear to have legitimate needs, as described in this manual. Every effort should be made to collect *documentation* regarding the shipper, consignee, description of packaging and method and quantity shipped.

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## Drug Enforcement Administration Field Offices

### Northeastern Region

| | |
|---|---|
| *Northeastern Regional Office*<br>555 W. 57th St., New York 10019 | 662-5151 |
| Boston District Office, G64 JFK Federal Bldg.,<br>Boston, Mass. 02203 | 223-2170 |
| Burlington Resident Office, P.O. Box 327,<br>Essex Junction, Vermont 05452 | 832-6777 |
| Concord Resident Office, Federal Bldg. & P.O., 55 Pleasant St.,<br>P.O. Box 1314, Concord, New Hampshire 03301 | 834-4784 |
| Portland Resident Office, 329 U.S. Courthouse Bldg.,<br>156 Federal St., P.O. Box 451, Portland, Maine 04101 | 833-3331 |
| Providence Resident Office, 232 P.O. Federal Bldg.,<br>Exchange Terrace, Providence, Rhode Island 02903 | 838-4322 |
| Springfield Resident Office, 201 Federal Office Bldg.,<br>436 Dwight St., Springfield, Mass. 01103 | 836-9591 |
| Long Island District Office, Suite IC-02, 1 Huntington<br>Quadrangle, Melville, New York 11747 | 665-2890 |
| New York City District Office, 555 W. 57th St.,<br>New York, New York 10019 | 662-5151 |
| Albany Resident Office, 746 Leo W. O'Brien Federal Bldg.,<br>Clinton Ave. & N. Pearl St., Albany, New York 12207 | 562-3425 |
| Bridgeport Resident Office, Federal Bldg. & Courthouse,<br>915 Lafayette Bldg., Bridgeport, Connecticut 06604 | 643-4591 |
| Buffalo Resident Office, Suite 300, 268 Main St.,<br>Buffalo, New York 14202 | 437-4421 |
| Hartford Resident Office, Room 628, 450 Maine St.,<br>Hartford, Connecticut 06103 | 224-3230 |
| JFK Airport Station, P.O. Box 361, JFK Station,<br>Jamaica, New York 11430 | 665-2892 |
| Montreal Resident Office, P.O. Box 65, Postal Station<br>Disjardins, Consulate General of the U.S.A.,<br>Montreal, Quebec, Canada HSB 161 | 832-6501<br>(Ask for 514-281-1461) |

Rochester Resident Office, Federal Station, P.O. Box 3210,
Rochester, New York 14614 ---- 473-3180
New York DEA Drug Task Force, Suite 1700, 555 W. 57th St.,
New York, New York 10019 ---- 662-5151
Newark District Office, Federal Office Bldg., 970 Broad St.,
Newark, New Jersey 07101 ---- 341-6060
Atlantic City Resident Office, 950 Tilton Rd.,
Northfield, New Jersey 08225 ---- 483-4316
Philadelphia District Office, 10224 William J. Green Federal
Bldg., 600 Arch St., Philadelphia, Pennsylvania 19106 - 597-9530
Pittsburgh Resident Office, 2306 Federal Bldg., 1000 Liberty
Ave., Pittsburgh, Pennsylvania 15222 ---- 722-3390
Wilmington Resident Office, 5305-5307 J. Caleb Boggs
Federal Office Bldg., 844 King St., Wilmington,
Delaware 19801 ---- 487-6184

**South Eastern Region**

*South Eastern Regional Office*
8400 N.W. 53rd Street, Miami, Florida 33166 ---- 820-4870
Miami District Office, 8400 N.W. 53rd Street,
Miami, Florida 33166 ---- 820-4870
Greensboro Resident Office, Room 111, 925 W. Market St.,
Greensboro, North Carolina 27401 ---- 699-5203
Norfolk Resident Office, Federal Bldg., Suite 320,
200 Granby Mall, Norfolk, Virginia 23510 ---- 827-3152
Washington District Office, Room 2558, 400 Sixth St., S.W,
Washington, D.C. 20024 ---- 724-7834
Wilmington Resident Office, P.O. Box 4189, Wilmington,
North Carolina 28406 ---- 671-4513
Baltimore District Office, 955 Federal Bldg., 31 Hopkins
Plaza, Baltimore, Maryland 21201 ---- 922-4800
Atlanta District Office, 200 United Family Life Bldg., 230
Houston St., N.E., Atlanta, Georgia 30303 ---- 242-4401
Charleston Resident Office, Room 630, 334 Meeting St.,
Charleston, South Carolina 29403 ---- 677-4531
Columbia Resident Office, Room 204, 1101 Laurel,
P.O. Box 702, Columbia, South Carolina 29202 ---- 677-5251
Jacksonville Resident Office, Suite 210, 4077 Woodcock Dr.,
Jacksonville, Florida 32207 ---- 946-3566
Orlando Resident Office, 235 Whooping Loop,
Altomonte Springs, Florida 32701 ---- 820-6155
San Juan District Office, 154 Housing Investment Bldg.,
416 Ponce de Leon Ave., Hato Rey, Puerto Rico 00919 - 472-6620
(Ask for 809-754-6450)
Nassau Resident Office, P.O. Box N8197, c/o Dept. of State
(Nassau), Washington, D.C. ---- (809) 322-1700, ext. 217
Savannah Resident Office, Suite C, 430 Mall Blvd.,
Savannah, Georgia 31406 ---- 248-4288
Tampa Resident Office, Suite 400, 700 Twiggs St.,
Tampa, Florida 33602 ---- 826-2178
West Palm Beach Resident Office, Room 223, 701 Clematis St.,
West Palm Beach, Florida 33401 ---- 350-7263
Kingston Resident Office DEA/Justice, U.S. Embassy,
Kingston, Jamaica, c/o Dept. of State, Washington, D.C.
20520 ---- (809) 929-4956
Panama City Resident Office, P.O. Box 1486, Panama City,
Florida 32401 ---- 946-5217
Fort Myers Resident Office, 2345 Union St., Suite D,
Fort Myers, Florida 33901 ---- 813-334-6245
New Orleans District Office, Suite 1800, 1001 Howard Ave.,
New Orleans, Louisiana 70113 ---- 682-6842
Baton Rouge Resident Office, Suite 118, 4560 N. Blvd.,
Baton Rouge, Louisiana 70806 ---- 687-0254
Mobile Resident Office, Suite 216, 2 Office Park, Mobile,
Alabama 36609 ---- 534-2831
Birmingham Resident Office, Suite 520, 236 Goodwin Crest,
Birmingham, Alabama 35209 ---- 229-0621
Little Rock Resident Office, Suite 850, One Union National
Plaza, Little Rock, Arkansas 72201 ---- 740-5981
Shreveport Post Of Duty, 8A20 Federal Bldg., U.S. Court-
house, P.O. Box 105, Shreveport, Louisiana 71102 - 493-5078
Jackson Resident Office, 1501A, Federal Bldg., 100 W.
Capitol St., Jackson, Mississippi 39201 ---- 490-4400
Nashville Resident Office A929, Estes KeFauver Bldg.,
FB-USCH, 801 Broadway, Nashville, Tennessee 37203 - 852-5988
Memphis Resident Office, 401 Federal Bldg., 167 N. Main St.,
Memphis, Tennesse 38103 ---- 222-3396
Tampa Airport Detail, Tampa, Florida ---- 826-2176
Orlando Airport Detail, Orlando, Florida ---- 820-6155
Fort Lauderdale Resident Office, Federal Bldg. U.S. Court-
house, 299 E. Broward Blvd., Ft. Lauderdale, Florida
33301 ---- 820-7264
Key West Regional Office, Suite 214, Townsquare Mall,
11400 Overseas Hghwy., Marathon, Florida 33050 - 305-743-7423

**North Central Region**

*North Central Regional Office*
1800 Dirksen Federal Bldg., 219 S. Dearborn St.
Chicago, Illinois 60604 ---- 353-7875
Chicago District Office, 1800 Dirksen Federal Bldg.,
219 S. Dearborn St., Chicago, Illinois 60604 ---- 353-7875
Hammond Resident Office, 407 Federal Bldg., 507 State St.,
Hammond, Indiana 46302 ---- 370-5321
Indianapolis Resident Office, Room 290, 575 N.
Pennsylvania, Indianapolis, Indiana 46204 ---- 331-7977
Detroit District Office, 357 Federal Bldg., 231 W. Lafayette,
Detroit, Michigan 48226 ---- 226-7290
Charleston Resident Office, 22 Capital St., P.O. Box 1146,
Charleston, West Virginia 25324 ---- 924-1425
Cincinnati Resident Office, 7405 Federal Bldg., 550 Main St.,
P.O. Box 1196, Cincinnati, Ohio 45202 ---- 684-3671
Cleveland Resident Office, Room 300, 601 Rockwell,
Cleveland, Ohio 44114 ---- 293-3705
Grand Rapids Resident Office, 310 Federal Bldg., U.S.
Courthouse, 110 Michigan, N.W., Grand Rapids,
Michigan 49502 ---- 372-2541
Kansas City District Office, Suite 400, 1150 Grand Ave.,
Kansas City, Missouri 64106 ---- 758-2631
Des Moines Resident Office, U.S. Courthouse, P.O. Box
1784, Des Moines, Iowa 50306 ---- 862-4700
Omaha Resident Office, New Federal Bldg., 215 N. 17th St.,
P.O. Box 661, Downtown Station, Omaha, Nebraska
68101 ---- 864-4222
Sioux Falls Resident Office, 208 E. 13th St, 2nd Floor,
Sioux Falls, South Dakota 57102 ---- 782-4421
Wichita Resident Office, Room 505, 202 W 1st. St.,
Wichita, Kansas 67202 ---- 752-6601
St. Louis District Office, Suite 200, Chromalloy Plaza,
120 S. Central Ave., St. Louis, Missouri 63105 ---- 279-3241
Louisville Resident Office, 1006 Federal Bldg., 600 Federal
Place, Louisville, Kntucky 40202 ---- 352-5908
Springfield Resident Office, 650 Lincoln Tower Plaza,
524 S. 2nd St., Springfield, Illinois 62701 ---- 955-4504
Minneapolis District Office, 402 Federal Bldg., 110 S. 4th St.,
Minneapolis, Minnesota 55401 ---- 725-2783
Milwaukee Resident Office, 228A Federal Bldg. & U.S.
Courthouse, 517 E. Wisconsin, Milwaukee,
Wisconsin 53202 ---- 362-3395
Fargo Resident Office, Room 225, 657 2nd N. Ave.,
Fargo, North Dakota 58102 ---- 783-5331

**South Central Region**

*South Central Regional Office*
1880 Regal Row, Dallas, Texas 75235 ---- 729-7203
Dallas District Office, 1880 Regal Row, Dallas, Texas
75235 ---- 729-7151
Brownsville Resident Office, 2100 Boca Chica Boulevard,
Suite 305, Brownsville, Texas 78521 ---- 734-8253

Corpus Christi Resident Office, 723 Upper N. Broadway, P.O. Box 2443, Corpus Christi, Texas 78403 -------- 734-3236

Del Rio Resident Office, 3605 Highway 90, West, P.O. Drawer 1247, Del Rio, Texas 78840 -------- 730-7241

Eagle Pass Resident Office, 342 Rio Grande Street, Room 102, Eagle Pass, Texas 78852 -------- 730-7236

El Paso District Office, 4110 Rio Bravo, Suite 100, El Paso, Texas 79902 -------- 572-7920

Fort Worth Resident Office, P.O. Box 17478, Fort Worth, Texas 76102 -------- 334-3455

Galveston Resident Office, P.O. Box 2070, Galveston, Texas 77550 -------- 527-6567

Houston District Office, 1540 Esperson Building, 815 Walker Street, Houston, Texas 77002 -------- 527-4331

Laredo Resident Office, P.O. Drawer 2307, Laredo, Texas 78041 -------- 734-6211

Midland Resident Office, 100 East Wall Street, P.O. Drawer 2668, Midland, Texas 79701 -------- 738-1217

McAllen District Office, 3017 S. 10th Street, P.O. Box 338, McAllen, Texas 78501 -------- 734-4562

Oklahoma City Resident Office, 250 Old Federal Bldg., 215 Dean A. McGee Ave., Oklahoma City, Oklahoma 73102 -------- 736-4141

San Antonio District Office, 4th Floor, 1800 Central Bldg., 1802 N.E. Loop 410, San Antonio, Texas 78217 -------- 730-5050

Tulsa Resident Office, Room 3335, 333 W. 4th St., Tulsa, Oklahoma 74103 -------- 736-7611

Austin Resident Office, 55 N. Interregional Hwy., P.O. Box 8, Austin, Texas 78767 -------- 734-5631

Lubbock Resident Office, 1605 Broadway, Lubbock, Texas 79403 -------- 738-7344

Denver District Office, 316 U.S Customs House, P.O. Box 1860, Denver, Colorado 80201 -------- 327-3951

Alpine Resident Office, P.O. Box 1282, Alpine, Texas 79830 -------- (915) 837-3421 (Non-FTS)

Cheyenne Resident Office, 8020 Federal Center, 2120 Capitol Ave., Cheyenne, Wyoming 82001 -------- 328-2391

Albuquerque District Office, 1st National Bank Bldg., East, 5301 Central Avenue, N.E., Albuquerque, New Mexico 87108 -------- 474-3285

Las Cruces Resident Office, A-100 Federal Bldg., P.O. Box 399, New Mexico 88001 -------- 572-0264

Phoenix District Office, 1980 Valley Bank Center, 201 N. Central, Phoenix, Arizona 85073 -------- 261-4866

Tucson District Office, Tucson International Airport, 6904 Plymer Ave., Tucson, Arizona 85706 -------- 762-6845

San Luis Resident Office, P.O. Box 450, San Luis, Arizona 85349 -------- 764-6578

Nogales Resident Office, 3970 Fairway Dr., P.O. Box 39, Nogales, Arizona 85621 -------- 764-1248

Douglas Resident Office, 2130 15th St., P.O. Drawer 1119, Douglas, Arizona 85607 -------- 762-6322

Salt Lake City Resident Office, 8416 Federal Bldg., 125 S. State St., Salt Lake City, Utah 84138 -------- 588-4156

**Western Region**

*Western Regional Office*

Suite 800, 350 S. Figuero St., Los Angeles, California 90071 -------- 798-2650

Los Angeles District Office, Suite 800, 350 S. Figuero St., Los Angeles, California 90071 -------- 798-4806

Anchorage Resident Office, 701 C St., Anchorage, Alaska 99513 -------- 399-0150 (Ask for 907-277-7638)

Blaine Resident Office, 170 C St., P.O. Box 1680, Blaine, Washington 98230 -------- 396-9420

Eugene Resident Office, 230 Federal Bldg., 211 E. 7th Ave., Eugene, Oregon 97401 -------- 425-6861

Boise Resident Office, 212 American Reserve Bldg., 2404 Bank Dr., Boise, Idaho 87305 -------- 554-1620

Great Falls Resident Office, 1111 14th St. S., P.O. Box 2887, Great Falls, Montana 59403 -------- 585-1371

Guam Resident Office, Suite 502c, 238 O'Hara St., P.O. Box 2137, Agana, Guam 96910 -------- 477-9926

Portland Resident Office, 706 Terminal Sales Bldg., 1220 S.W. Morrison, Portland, Oregon 97205 -------- 423-3371

Spokane Resident Office, U.S. Courthouse, 920 W. Riverside, P.O. Box 1504, Spokane, Washington 99201 -------- 439-5342

Seattle District Office, Suite 301, 7220 W. Mercer, Seattle, Washington 98119 -------- 399-5443

San Francisco District Office, Room 12215, 450 Golden Gate Ave., P.O. Box 36035, San Francisco, California 94102 -------- 556-6771

San Diego District Office, 402 W. 35th St., National City, California 92050 -------- 895-5654

Calexico Resident Office, 38 W. 4th St., P.O. Box J. Calexico, California 92231 -------- 894-2446

Las Vegas Resident Office, Federal Bldg. & U.S. Courthouse, 300 Las Vegas Blvd. S., P.O. Box 16023, Las Vegas, Nevada 89101 -------- 598-6635

Fresno Resident Office, Room 203, 2110 Merced St., Fresno, California 93707 -------- 467-5402

Honolulu Resident Office, Room 3129, 300 Ala Moana Blvd., P.O. Box 50163, Honolulu, Hawaii 96850 -------- 556-9000 (Ask for 808-546-8391)

Sacramento Resident Office, 2800 Cottage Way, P.O. Box 255097, E-1833 Federal Bldg., Sacramento, California 95825 -------- 468-4205

Reno Resident Office, 209 Bldg. 1, 4600 Kietzke Lane, Reno, Nevada 89502 -------- 470-5617

San Jose Resident Office/Task Force, Suite 200, 777 N. 1st St., San Jose, California 95110 -------- 463-7235

*Telephone numbers are FTS unless otherwise indicated.*

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# Introduction

In addition to restricting the transit of major drugs of abuse (heroin, cocaine, marihuana, etc.), the United States drug enforcement efforts are also directed at alternate trafficking practices by criminal entrepreneurs which still provide, or at least facilitate, a continuing supply of drugs to the ultimate abuser. A growing problem includes diversion of drugs (some of which are under limited controls), easy availability of chemicals (including precursors of illicit drugs and solvents or reagents for processing naturally-occurring highly abusable drugs), and clandestine laboratories which reformulate, manufacture or process the drug.

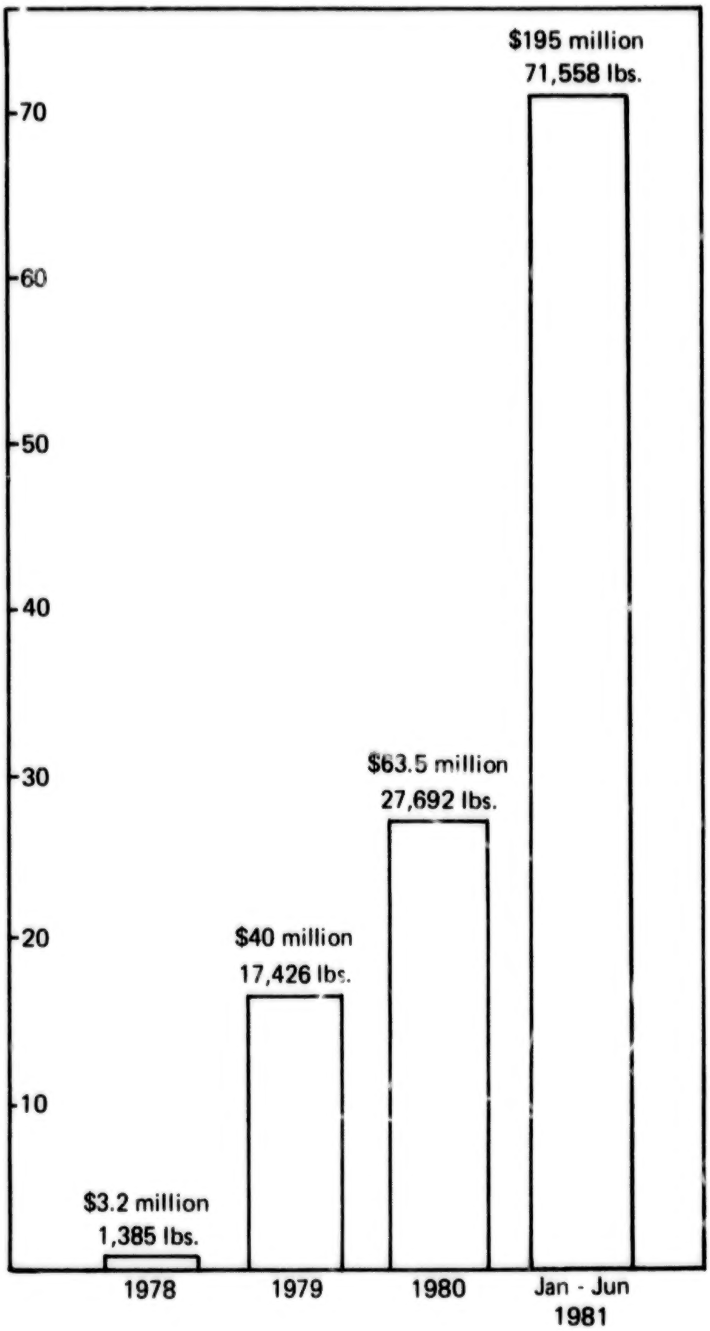
As an aid for Customs officials to counter the illicit traffic in drugs of abuse, chemical precursors, and processing solvents and reagents, the United States Drug Enforcement Administration has developed the *Customs Drug and Chemical Watch Manual.* The manual was conceived in an effort to promote a coordinated international customs watch system among all Nations. The manual contains a listing of drugs and chemicals which reflects the drug problem specific to each Nation. Most importantly, the manual will be a guide for Customs bodies in prioritizing and targeting the most critical and current drug problem. The manual contains descriptions of important features of the drugs and chemicals which should be given special attention by international Customs bodies. These include their alternate names, their legitimate and illicit uses, available legitimate production and sales estimates, descriptions of each product, manufacturing procedures, shipping, handling, and known worldwide sources and manufacturers.

Those substances which are controlled are so indicated in each descriptive section.

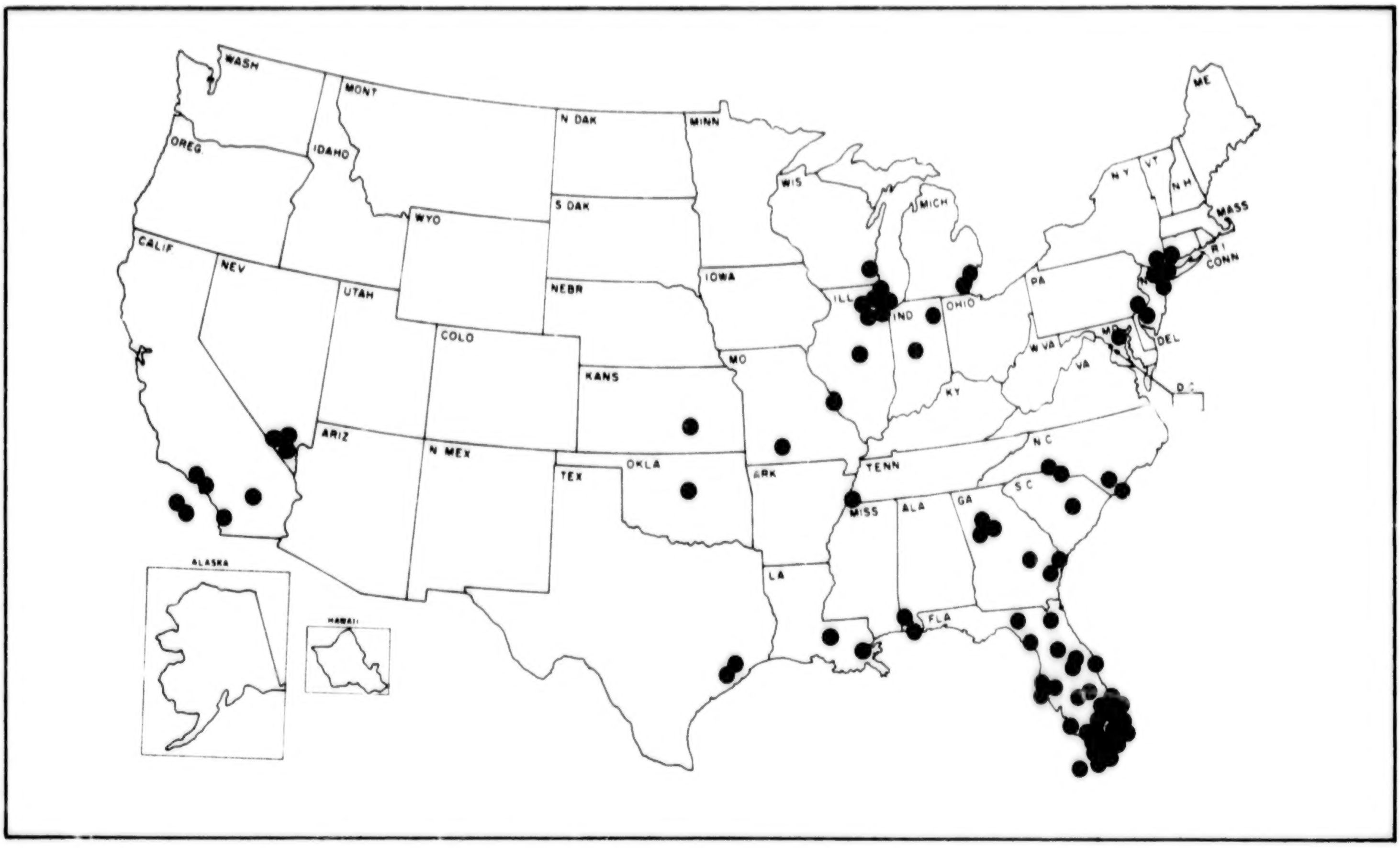
The problem is best exemplified by the example of methaqualone (commonly referred to by its United States trade name, Quaalude), which during the 1970's has experienced tremendous growth in abuse. As a result of strict United States controls placed on methaqualone, traffickers were forced to look outside of the United States in order to obtain large supplies of the drug. In 1977 it became apparent that clandestine methaqualone tableting laboratories in Latin American countries were being established. Since most European countries do not control the importation or exportation of methaqualone, these violators found a new source of supply, select European pharmaceutical suppliers that apparently do not verify the legitimacy of their customers. Illicit traffickers in Latin American countries ordered methaqualone powder from one of a number of European firms and retained their anonymity by using a series of brokers. Since the drug has not been controlled in many countries, "legitimate" shipments of methaqualone powder have been shipped for unlawful conversion into tablets. The tablets are then smuggled

## Methaqualone Seizures 1978 - 1st Half 1981

(estimated street value in millions)



## Methaqualone Seizures: 1980



into the United States, usually by small privately owned aircraft.

During 1980, 12.6 tons of methaqualone were seized by law enforcement authorities in the United States and in South America. In the first six months of 1981, investigative efforts have resulted in the seizure of over 32 tons.

Projections for 1980 indicated that at least 100 tons of legitimate methaqualone powder were diverted into the illicit market, primarily to Colombia, for tableting into dosage forms. The extent of the diversion problem can be appreciated when these seizure figures are compared to the annual *legitimate* production of methaqualone for the United States of only 4.2 tons. Methaqualone is not the only drug which appears in this international pattern of diversion. Since 1976 over 1,400 kilograms of secobarbital, 1,300 kilograms of methamphetamine and large quantities of other stimulants have been diverted into illicit channels of distribution.

The diversion of drugs under minimal international control may pose equally alarming consequences. It appears that the greater the extent of a drug's availability to the legitimate market, the more likely will be its diversion and unpredictable applications For example, approximately 3 billion dosage units of diazepam are prescribed annually in the U.S. The legitimate drug product is tableted in 2 mg, 5 mg and 10 mg doses. However, bulk diazepam has been found to be diverted from legal channels and reformulated in clandestine laboratories into tablets that contain far more diazepam than the medicinally recommended dose. The most consistently recurring form of clandestine diazepam between 1977 and 1981 has been methaqualone counterfeits. Evidence of its being sold as methaqualone is its resemblance to Quaaludes. These tablets have been inscribed with the markings "RORER 714"; since 1980, the counterfeits which have appeared bear the inscription of the recent U.S. manufacturer of methaqualone, "LEMMON 714." The following amounts of these dosage units have been reported seized by law enforcement personnel: 54,008 tablets (1977); 55,433 tablets (1978); 203,228 tablets (1979); and 278,740 tablets (1980). Their average dose is 36.7 mg per tablet and have contained as much as *290.0 mg of diazepam.* The average dose per tablet reported in 1980 was 46.8 mg of diazepam. These methaqualone "look-alikes" have been obtained in all sections of the

U.S. and also have been reported from Colombia and Turkey. Clandestinely formulated bulk diazepam has also been found in combination in varying amounts with other drugs, including heroin, cocaine, PCP, dihydrocodeinone and chlordiazepoxide.

In addition to those clandestine laboratories which process tablets from diverted drug material, clandestine manufacture of drugs is also a problem. This problem area is facilitated by a lack of significant controls on chemicals in international commerce. Similarly, the availability of chemical solvents and reagents used in processing illicit crops enable the production of heroin, cocaine, and hashish to continue.

In 1980, U.S. law enforcement authorities seized a total of 234 clandestine laboratories, which produced large profits in the manufacture of other drugs besides heroin, including depressants, stimulants and hallucinogens. The great majority were manufacturing the drugs listed below, and/or their chemical precursors and analogs. The number in parenthesis ( ) corresponds to the per cent of laboratories manufacturing the indicated drug:

1) Methamphetamine (54%);
2) Phencyclidine (PCP) (21%);
3) Amphetamine (8.5%);
4) Methaqualone (7.2%); and
5) Lysergic acid diethylamide (LSD) (1.7%).

These drugs can be easily and economically manufactured from available precursors and by procedures in which great expertise in chemistry is not necessary.

The United States is not alone in having a problem with clandestine laboratories. In 1979 and 1980, clandestine laboratories manufacturing amphetamine and methamphetamine were seized in Belgium, Denmark, England, Iran, the Republic of Korea, Mexico, The Netherlands, Scotland, and Sweden; those in Canada and Germany were manufacturing LSD; methaqualone was manufactured in Mexico; and PCP in Canada. During 1979 and 1980, clandestine laboratories manufacturing heroin were seized in Burma, France, Iran, Italy, and Turkey. Cocaine processing occurred in South American countries. The clandestine processing laboratories rely upon the availability of large quantities of ether and acetone to manufacture cocaine and heroin.

**Priority Drugs**

The following drugs have been selected for incorporation in the manual. Other highly abusable substances (heroin, cocaine, marihuana and hashish) have not been included since they are well established as priority items by many international Customs bodies. The intent of the following list is to warn the law enforcement and Customs communities of serious problems resulting from other dangerous drugs which when abused, also have negative effects on society:

1) Methaqualone;
2) Methamphetamine;
3) Amphetamine and Dextroamphetamine;
4) Hydromorphone;
5) Diazepam;
6) Amobarbital;
7) Pentobarbital; and
8) Secobarbital;

**Priority Chemical Precursors**

A chemical precursor is a substance from which other substances (drugs) are formed. The term "immediate precursor" is defined in the Controlled Substances Act (CSA—Public Law 91-513, Section 102) as a substance which the Attorney General has found to be the principal, immediate chemical intermediary used, or likely to be used, or produced primarily for use, in the manufacture of a controlled subsance. An "immediate precursor" may be controlled in order to prevent, curtail, or limit the manufacture of the controlled substance of which it is an "immediate precursor".

The chemicals which have been selected as priority substances to be given special attention by international Customs bodies have all been used in the clandestine manufacture of a specific drug of abuse. They are, to a large extent, specific and critical to the production of certain drugs; they are incorporated into the drug molecule itself as opposed to solvents; and, for the most part, each is the chemical reactant which is the "limiting reagent" in the drug manufacturing process. The "limiting reagent" determines the amount of drug ultimately produced.

It is recommended that special priority attention be given by international Customs and enforcement bodies to the following chemicals used in the manufacture of clandestine drugs:

1) *Anthranilic acid* and *N-Acetylanthranilic acid*—used to manufacture methaqualone;

2) *Phenyl-2-propanone* and *Phenylacetic acid*—used to manufacture amphetamine and methamphetamine;

3) *Piperidine*—used to manufacture phencyclidine (PCP); and

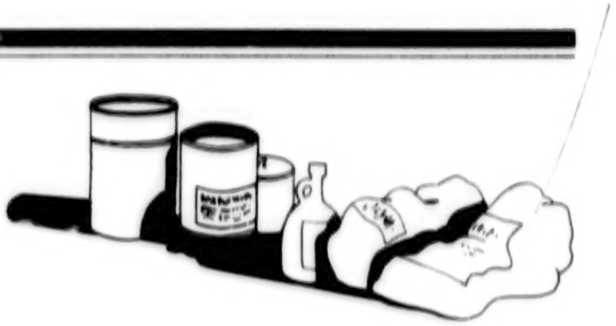
4) The ergot alkaloids, *Ergotamine* and *Ergonovine*—used to manufacture lysergic acid diethylamide (LSD).

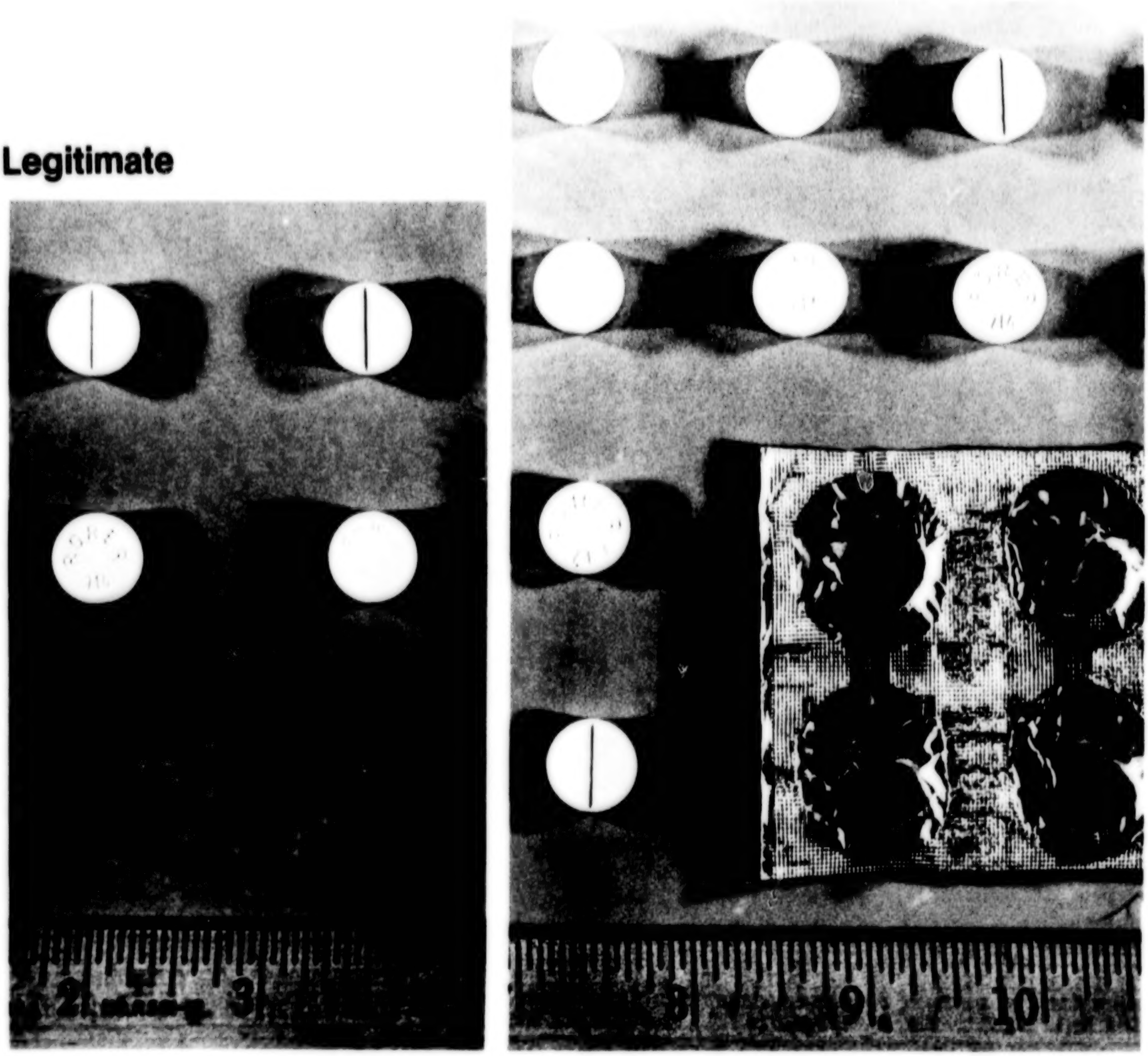
**Priority Chemical Solvents and Reagents**

The chemical solvents and reagents are relatively less specific than the precursors. Indeed, many have broad industrial applications, including textiles, petrochemicals and polymers, and are, therefore, manufactured, imported, or exported in large quantities for legitimate purposes relative to their clandestine drug use. The following solvents and reagents have been selected to be given special priority attention by international Customs bodies:

1) *Acetone*—used in processing heroin and cocaine;
2) *Ethyl ether*—used in processing heroin and cocaine;
3) *Acetic anhydride*—used to manufacture heroin; and
4) *Acetyl chloride*—used to manufacture heroin.

# Drugs





Legitimate

Clandestine

Comparison of legitimate and clandestine manufactured methaqualone tablets.

# Methaqualone

*Other Names*

2-Methyl-3-*o*-tolyl-4(3H)-quinazolinone; 2-methyl-3-(*o*-tolyl)-4-quinazoline; 3,4-dihydro-2-methyl-4-oxo-3-*o*-tolylquinazoline; metolquizolone; MAOA; MTQ; ortonal; QZ-2; RIC 272; Rorer 148; TR 495; Cateudyl; Citexal; Dormigoa; Dormogen; Dormutil; Dorsedin; Fadormir; Holodorm; Hyminal; Hypcol; Hyptor; Ipnofil; Melsomin; Mequin; Mollinox; Motolon; Nobedorm; Noctilene; Normi-Nox; Omnyl; Optinoxan; Parminal; Parest; Quaalude; Roulone; Rouqualone; Sindesvel; Somnafac; Sonal; Somberol; Somnomed; Sopor; Soverin; Torinal; Tuazolone.

*Hydrochloride Salt:* Melsedin; Mequelon; Metadorm; Methased; Optimil; Paxidorm; Revonal; Riporest; Sedaquin; Sleepinal; Somnium; Toquilone; Toraflon; Tuazole.

*Use*

Therapeutic and Illicit: Sedative-hypnotic.

*Description*

Bulk—white crystals or powder.

Tablets—white tablets with various inscriptions or markings, "RORER 714," "LEMMON 714" (legitimate and clandestine).

Schedule II of the Psychotropic Substances Convention.

Schedule II of the U.S. Controlled Substances Act.

*Amount Manufactured (Worldwide)*

88,229 lbs. (40,104 kg) *1979*—a decline from 206,560 lbs. (93,891 kg) in *1977*.

*Source Manufacturers (1979)*

Hungary; United States of America; German Democratic Republic; France; India; Czechoslovakia; Poland; (Peoples Republic of China; Federal Republic of Germany; Austria—1981).

*Importing Countries (1979)*

Australia; Bahamas, Bulgaria; Canada; Cyprus; Denmark; French Polynesia; Greece; Guyana; Hong Kong; Iran; Ireland; New Caledonia; Norway; Papua New Guinea; Singapore; Turkey; United Kingdom; Zambia.

*Exporting Countries (1979)*

Australia; Brazil; Canada; Cyprus; France; German Democratic Republic; Hong Kong; Hungary; Ireland; Norway; United Kingdom; (Peoples Republic of China; Federal Republic of Germany; Austria—1981).

# Methamphetamine

*Other Names*

(S)-N,$\alpha$-Dimethylbenzeneethanamine; *d*-N,$\alpha$-dimethylphenethylamine; *d*-N-methylamphetamine; *d*-deoxyephedrine; *d*-desoxyephedrine; 1-phenyl-2-methylaminopropane; *d*-phenylisipropylmethylamine; metheyl-$\beta$-phenylisopropylamine; Norodin.

*Hydrochloride Salt:* "Speed," "Meth," Adipex, Amphedroxyn, Desfedrin, Desoxyfed, Desoxyn, Destin, Dexoval, D-O-E, Doxephrin, Drinalfa, Efroxine, Gerobit, Hiropon, Isophen, Madrine, Methedrine, Methylisomyn, Pervitin, Semoxydrine, Soxysympamine, Syndrox, Tonedron.

*Use*

Therapeutic and Illicit: Stimulant.

*Description*

Bulk—White crystals or powder.
Tablets—White (2.5 mg and 5 mg); Orange (10 mg); and Yellow (15 mg).

Schedule II of the Psychotropic Substances Convention.
Schedule II of the U.S. Controlled Substances Act.

*Amount Manufactured (Worldwide)*

6,351 lbs. (2,887 kg) *1979.*

*Source Manufacturers (1979)*

Switzerland; Federal Republic of Germany; France; United States of America.

*Importing Countries (1979)*

Chile; Federal Republic of Germany; Mexico; Spain; Dominican Republic; The Netherlands; Canada.

*Exporting Countries (1979)*

Belgium; Chile; Federal Republic of Germany; Mexico; Bolivia; Dominican Republic; Laos; Spain; The Netherlands; Canada; Pakistan.

# Amphetamine and Dextroamphetamine

*Other Names*

(±)-$\alpha$-Methylbenzeneethanamine; *dl*-$\alpha$-methylphenethylamine; 1-phenyl-2-aminopropane; (phenylisopropyl)amine; $\beta$-aminopropylbenzene; racemic desoxynorephedrine; Actedron; Allodene; Benzedrine; Adipan; Sympatedrine; Psychedrine; Isomyn; Isoamyne; Mecodrin; Norephedrane; Novydrine; Elastonon; Ortedrine; Phenedrine; Profamina; Propisamine; Sympamine; Simpatedrin; Delcobese; Obetrol.

*d-Form:* Dextroamphetamine Sulfate
(S)-$\alpha$-Methylbenzeethanamine sulfate; *d*-$\alpha$-methylphenethylamine sulfate; *d*-amphetamine sulfate; *d*-1-phenyl-2-aminopropane sulfate; *d*-$\beta$-phenylisopropylamine sulfate; Dexedrine Sulfate; Afatin; Dexamphetamine; *d*-Amfetasul; Domafate; Obesedrin; Dexten; Maxiton; Sympamin; Simpamina-D; Albemap; Dadex; Ardex; Dexalone; Amsustain; Betafedrina *d*-Betaphedrine; Diocurb; Carboxyphen; Dexampex; Eskatrol; Dexamyl (with amobarbital).

*l-Form:* Levamphetamine, Levamfetamine; Cydril.

*Other Salts:* Amphetamine (4-chlorophenoxy)acetate; Satietyl; amphetamine phosphate; Racephen; Aktedron; Actemin; Monophos; Profetamine Phosphate; Raphetamine Phosphate.

*Amphetamine Sulfate:* Benzedrine Sulfate; Alentol; Psychoton; Simpamina.

*Use*

Therapeutic: Stimulant; Anorexic.
Illicit : Stimulant.

*Description*

Bulk—White crystals or powder
Tablets and Capsules (5 mg; 10 mg; 15 mg; 20 mg)
Time-Release Capsules (10 mg; 15 mg; 20 mg)—various colors and shapes.
Illicit: Generally white tablets

Schedule II of the Psychotropic Substances Convention.
Schedule II of the U.S. Controlled Substances Act.

*Amount Manufactured (Worldwide)*

58,560 lbs. (26,618 kg) *1979*

*Source Manufacturers (1979)*

France; German Democratic Republic; Soviet Union; United States; India; Federal Republic of Germany; Switzerland.

*Importing Countries (1979)*

Belgium; Chile; Czechoslovakia; Denmark; Federal Republic of Germany; Iceland; The Netherlands; Norway; Sweden; Switzerland.

*Exporting Countries (1979)*

Belgium; Bulgaria; France; Switzerland.

# Hydromorphone

*Other Names*

4,5α-Epoxy-3-hydroxy-17-methylmorphinan-6-one; dihydromorphinone; Dimorphone; Novolaudon; Dilaudid; Laudicon; Hymorphan; Assilaudid; Biomorphyl; Cofalaudide; Cormorphin; Dilaudide; Dimorphid; Dimorphinon; Laudacon; Laudadin; Laudamed; Lucodan; Morfikon; Morphodid; Percoral; Scolaudal.

*Use*

Therapeutic : Analgesic; Narcotic.
Illicit : Narcotic.

*Description*

Bulk — White powder.
Tablets — 1 mg (green) 2 mg (orange); 3 mg (pink); 4 mg (yellow).
Solution (ampules) — 1 mg, 2 mg, 3 mg, and 4 mg hydromorphone hydrochloride per ml.
Solution (multiple dose vials) — 10 ml and 20 ml sterile solutions, each ml containing 2 mg hydromorphone hydrochloride.
Suppositories — 3 mg hydromorphone hydrochloride each.
Solution (Elixir) — 1 pint (473 ml) each containing 1 mg hydromorphone hydrochloride per 5 ml.

Schedule I of the Single Convention on Narcotics.
Schedule II of the U.S. Controlled Substances Act.

*Amount Manufactured (Worldwide)*

Approximately 242 lbs. (110 kg) *1980.*

*Source Manufacturers (1980)*

At least 90% manufactured in USA (Knoll); also manufactured by Knoll AG in Federal Republic of Germany and Switzerland.

*Importing Countries (1980)*

Australia; Ireland; Guatemala; Sweden; Switzerland and Nigeria (from Switzerland and Federal Republic of Germany); Canada (from USA).

*Exporting Countries (1980)*

Federal Republic of Germany, Switzerland, and United States of America.

# Diazepam

*Other Names*

7-Chloro-1,3-dihydro-1-methyl-5-phenyl-2H-1,4-benzodiazepin-2-one; 7-chloro-1-methyl-5-phenyl-3H-1,4-benzodiazepin-2(1H)-one; methyl diazepinone; La III; Ro 5-2807; Ansiolin; Apaurin; Apo-diazepam; Apozepam; Atensine; Atilen; Bialzepam; Calmpose; Canazepam; Ceregulart; Dipam; D-Tran; E-Pam; Eridan; Faustan; Lembrol; Levium; Morosan; Noan; Novodipam; Pacitran; Paxate; Paxel; Relanium; Seduxen; Setonil; Stesolid; Stesolin; Tranimul; Valium; Vival; Vivol.

*Use*

| | |
|---|---|
| Therapeutic: | A minor tranquilizer for relief of anxiety, tension and stress; also the relief of muscle spasms; also an adjunct in treating convulsive seizures. |
| Illicit : | A methaqualone substitute which is often in the form of Quaalude® "look-alikes"; also barbiturate, heroin, and cocaine substitutes. |

*Description*

| | | |
|---|---|---|
| Legitimate: | Bulk | — white powder |
| | Tablets | — 2 mg (white);<br>— 5 mg (yellow);<br>— 10 mg (blue). |
| | Solution | — Ampules 2 ml (5 mg/ml);<br>Vials 10 mg (5 mg/ml);<br>Tel-E-Ject$^{R}$ Disposible Syringes 2 mg (5 mg/ml). |
| Illicit : | Tablets resembling methaqualone with "RORER 714" or "LEMMON 714" markings and containing as much as 290 mg diazepam; also powders in combination with other drugs, e.g., heroin, cocaine, and PCP; also capsules resembling barbiturates containing as much as 35 mg diazepam. | |

Schedule IV of the U.S. Controlled Substances Act.

*Amount Manufactured*

Unknown. Approximately 9,200 kg diazepam are estimated purchases in the USA.

*Source Manufacturers (1980)*

Italy; Germany Democratic Republic; Hungary; Poland; Czechoslovakia; Soviet Union; Denmark; Canada; Peoples Republic of China; Japan; India; Federal Republic of Germany; United States of America.

*Importing Countries*

Canada; Italy; Thailand; Grand Cayman Islands; Saudi Arabia; Poland; Belgium; Australia; British West Indies; Switzerland; United States of America; Zambia; India; Mexico; Iceland; Nicaragua; Finland; Zaire; Taiwan; and many others.

*Exporting Countries*

Canada; Italy; United States of America; and many others.

# Amobarbital

### Other Names

5-Ethyl-5-(3-methylbutyl)-2,4,6- (1H,3H,5H)-pyrimidinetrione; 5-ethyl-5-isopentylbarbituric acid; 5-ethyl-5-isoamylbarbituric acid; barbamyl; barbamil; amylobarbitone; 5-isoamyl-5-ethylbarbituric acid; pentymal; Somnal; Dormytal; Isomytal; Eunoctal; Amal; Mylodorm; Sednotic; Amasust; Stadadorm; Amytal; Amesec (with aminophylline and ephedrine hydrochloride);Dexamyl (with dextroamphetamine sulfate).

*Sodium Salt:* Amytal Sodium; Amsebarb; Barbamyl; Dorminal; Inmetal; Tuinal (with sodium secobarbital).

### Use

Therapeutic and Illicit: Sedative-hypnotic

### Description

| | |
|---|---|
| Bulk | — White powder. |
| Solutions (elixirs) | — 880 mg/100 ml in 16 fluid ounce bottles. |
| Tablets | — 15 mg; 30 mg; 50 mg; 100 mg (various colors). |
| Solutions (ampules) | — 125 mg; 250 mg; 0.5 gm. |
| Capsules | — 65 mg; 200 mg (various colors). |

Schedule III of Psychotropic Substances Convention.
Schedule II of the U.S. Controlled Substances Act.

### Amount Manufactured (Worldwide)

114,508 lbs. (52,049 kg) *1979*.

### Source Manufacturers (1979)

Denmark; Soviet Union; United States of America; Japan.

### Importing Countries (1979)

Australia; Bahamas; Bulgaria; Canada; Cuba; Cyprus; Denmark, Fiji; Finland; Greece; Hong Kong; Hungary; India; Iran; Italy; Japan; Macau; Malaysia; Malta; Mexico; New Zealand; Norway; Qatar; Rumania; Singapore; South Africa; Spain; Sweden; Thailand; Togo; Tunisia.

### Exporting Countries (1979)

Australia; Denmark; Hong Kong; Hungary; Italy; Malaysia; Singapore; Spain; Soviet Union.

# Pentobarbital

## *Other Names*

***Sodium Salt:*** 5-Ethyl-5-(1-methylbutyl)-2,4,6(1H,3H,-5H)-pyrimidinetrione monosodium salt; sodium 5-ethyl-5-(1-methylbutyl)barbiturate; soluble pentobarbital; pentobarbitone sodium; 844; Nembutal; Embutal; Pentyl; Pentone; Sopental; Carbrital (with carbromal); Continal; Euthatal; Mebumal Sodium; Sagatal; Penbar; Somnopentyl; Sonistan; WANS (with pyrilamine maleate).

***Base:*** Barpental; Sotyl; Neodorm; Matropinal (with homatropine methylbromide).

***Calcium Salt:*** Pentobarbital Calcium; Nembutal Calcium, Repocal.

## *Use*

Therapeutic : Sedative-hypnotic.
Veterinary : Anesthetic; anticonvulsant; for euthanasia.
Illicit : Sedative-hypnotic.

## *Description*

Bulk — White powder.
Solution (Elixir) — 4 mg/ml.
Solution (Ampule) — 50 mg/ml.
Capsules — 30 mg, 50 mg, 100 mg (various colors).
Suppositories — 30 mg, 120 mg, 200 mg.

Schedule III of the Psychotropic Substances Convention.

Schedule II of the U.S. Controlled Substances Act.

## *Amount Manufactured (Worldwide)*

73,011 lbs. (33,187 kg) *1979*

## *Source Manufacturers (1979)*

United States of America; Denmark; Soviet Union; Republic of Korea; Japan.

## *Importing Countries (1979)*

Australia; Brazil; Bulgaria; Canada; Chile; Cyprus; Czechoslovakia; Denmark; El Salvador; Finland; Gambia; Democratic Republic of Germany; Greece; Honduras; Iceland; India; Iran; Ireland; Israel; Japan; Kuwait; Libya; Mexico; Nigeria; Norway; Philippines; Qatar; Republic of Korea; Singapore; South Africa; Spain; Sweden; Tunisia; Turkey; Zimbabwe.

## *Exporting Countries (1979)*

Australia; Canada; Denmark; Singapore; South Africa.

# Secobarbital

### *Other Names*

*Sodium Salt:* 5-(1-Methylbutyl)-5-(2-propenyl)-2,4,6 (1H,3H,5H)-pyrimidinetrione monosodium salt; sodium 5-allyl-5-(1-methylbutyl) barbiturate; 5-allyl-5-(1-methylbutyl) barbituric acid sodium salt; 5-allyl-5-(1-methylbutyl)malonylurea sodium salt; meballymal sodium; quinalbarbitone sodium; Bipinal Sodium; Immenoctal; Imesonal; Seotal; Pramil; Quinalspan; Sebar; Sedutain Seconal Sodium; Tuinal (with sodium amobarbital).

### *Use*

Therapeutic and Illicit: Sedative-hypnotic.

### *Description*

Bulk — White powder.
Capsules — 50 mg, 100 mg (Red).
Solution (Elixir) — 4.4 mg/ml.
Solution (Ampule) — 50 mg/ml.
Suppositories — 30 mg, 60 mg, 120 mg, 200 mg.

Schedule III of the Psychotropic Substances Convention.

Schedule II of the U.S. Controlled Substances Act.

### *Amount Manufactured (Worldwide)*

34,100 lbs. (15,000 kg) *1979*.

### *Source Manufacturers (1979)*

Denmark; Japan; Republic of Korea; United States of America.

### *Importing Countries (1979)*

Australia; Canada; Denmark; Haiti; Hong Kong; India; Italy; Libya; Malaysia; Malta; Mexico; New Zealand; Nigeria; Norway; Philippines; Poland; Republic of Korea; Saudi Arabia; Singapore; Spain; Sweden; Togo; Tunisia; Zimbabwe.

### *Exporting Countries (1979)*

Australia; Denmark; Hong Kong; South Africa.

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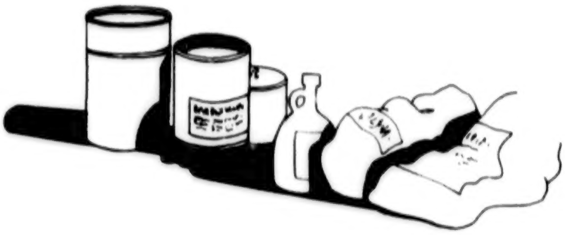
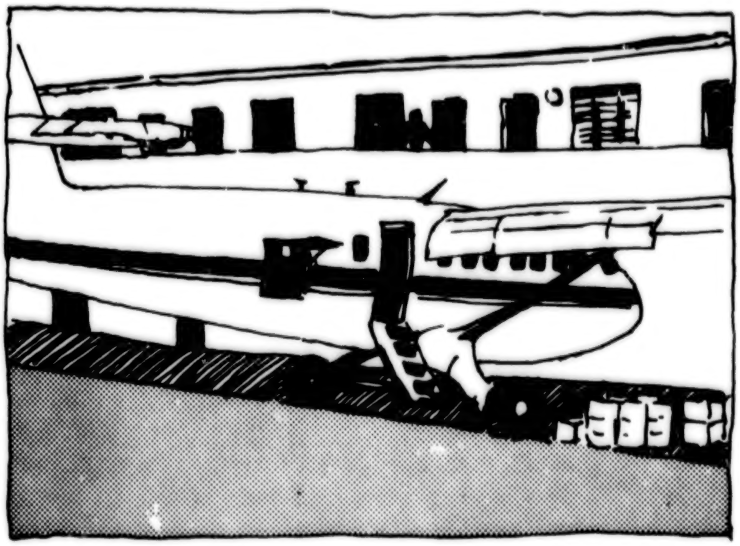
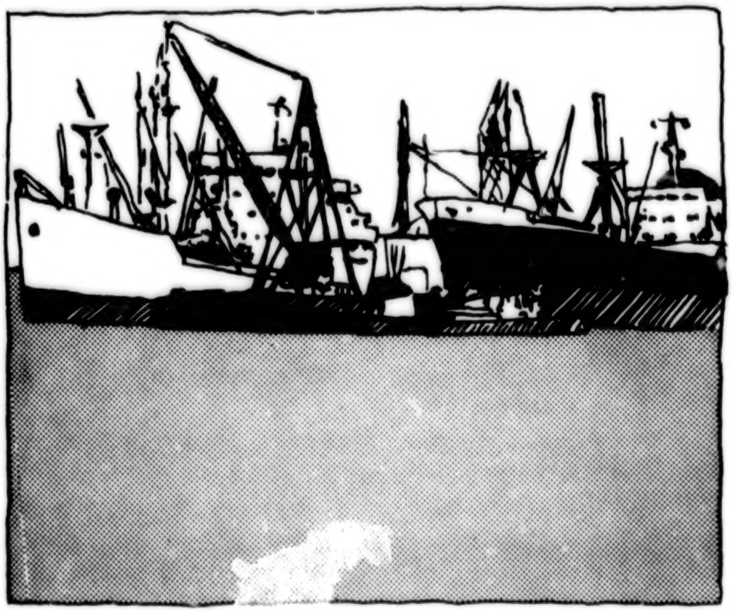
# Chemical Precursors







# Anthranilic Acid

*Other Names*

*o*-Aminobenzoic acid; *ortho*-aminobenzoic acid.

*Legitimate Uses*

Chemical intermediate required to manufacture dyes, pharmaceuticals, raw chemicals, perfumes, etc.

*Illicit uses*

Chemical precursor of methaqualone.

*Legitimate Purchasers*

Manufacturers of pharmaceuticals, dyes, pigments, agricultural chemicals, lubricants, etc.

*Annual Production (USA)*

600,000 lbs. (272,727 kg) *Estimate.*

*Annual Sales Quantity (USA)*

600,000 lbs. (272,727 kg) *Estimate.*

*Annual Sales Value—Wholesale (USA)*

$500,000 (U.S.) *Estimate.*

*Form of Product*

White to light tan fine crystalline powder.

*Industrial Manufacture*

From isatoic anhydride and alkalis.

*Shipping Containers*

150 lbs. (68.2 kg) net fiber drums; also as bulk powder.

*Storage*

Tightly closed containers in cool dry area.

*U.S. Manufacturers*

1. Chemisphere Corporation, Boonton, New Jersey.
2. Salsbury Laboratories, Inc., Charles City, Iowa.
3. Sherwin Williams Chemicals, Division of Sherwin Williams Company, Cleveland, Ohio.

*Foreign Sources*

1. ACNA SPA (Italy)

   Other Company Manufacturer or Distributor Locations:
   Argentina, Austria, Brazil, Burma, Canada, Chile, Colombia, Denmark, Ecuador, Egypt, Ethiopia, Finland, Germany, Greece, Guatemala, Hong Kong, India, Iran, Iraq, Ireland, Israel, Libya, Mexico, Morocco, Pakistan, Peru, Portugal, Singapore, South Africa, Spain, Sri Lanka, Switzerland, Syria, Thailand, Turkey, United Kingdom, United States of America, Uruguay.

2. Aldrich—Europe Janssen Pharmaceutica (Belgium)

   Other Company Manufacturer or Distributor Locations:
   Austria, Greece, Italy, Norway, Spain, Sweden, Switzerland.

3. Baker Chemicals BV (The Netherlands)

   Other Company Manufacturer or Distributor Locations:
   Belgium, Denmark, Finland, France, Italy, Norway, Spain, Sweden, Switzerland, United Kingdom.

4. BASF Products (Germany)

   Other Company Manufacturer or Distributor Locations:
   Afghanistan, Algeria, Angola, Argentina, Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Bolivia, Brazil, Bulgaria, Burma, Cambodia, Cameroon, Canada, Canary Islands, Chile, Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji Islands, Finland, France, Ghana, Greece, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Ireland, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Korea, Kuwait, Lebanon, Liberia, Libya, Madagascar, Malaysia, Mauritius, Mexico, Morocco, The Netherlands, Netherlands Antilles, New Guinea, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Rumania, Saudi Arabia, Sierra Leone, Singapore, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Turkey, Uganda, Venezuela, Yugoslavia, Zaire, Zambia.

5. BDH Chemicals Ltd.—Overseas Division (United Kingdom)

   Other Company Manufacturer or Distributor Locations:
   Algeria, Angola, Argentina, Australia, Bahrain, Bangladesh, Barbados, Belgium, Bermuda, Bolivia, Brazil, Burma, Cameroon, Canada, Canary Islands, Chile, Colombia, Costa Rica, Cyprus, Dahomey, Denmark, Dominican Republic, Dubai, Ecuador, Egypt, El Salvador, Ethiopia,

Fiji Islands, France, Gabon, Ghana, Greece, Guatemala, Guyana, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Kuwait, Lebanon, Liberia, Libya, Madagascar, Malawi, Malaysia, Malta, Mauritius and Reunion, Mexico, Morocco, Mozambique, Nepal, The Netherlands, New Zealand, Nigeria, Pakistan, Panama, Paraguay, Peru, Philippines, Portugal, Qatar, Saudi Arabia, Republic of Senegal, Singapore, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Turkey, Uganda, Venezuela, Yugoslavia, Zaire, Zambia.

6. EGA—Chemie KG Keppler and Reif (Germany)
7. Fluka A.G. (Switzerland)

   Other Company Manufacturer or Distributor Locations:

   United States of America.
8. Ferak Berlin (Germany)
9. Heybroek and Company N.V. (The Netherlands)
10. Hopkin and Williams (United Kingdom)

    Other Company Manufacturer or Distributor Locations:
    Afghanistan, Angola, Argentina, Australia, Bahrain, Bangladesh, Belgium, Brazil, Canada, Colombia, Cyprus, Denmark, Ethiopia, Fiji Islands, Finland, France, Ghana, Greece, Hong Kong, Indonesia, Iran, Iraq, Ireland, Italy, Jamaica, Kuwait, Laos, Lebanon, Libya, Malaysia, Malta, Mauritius, Morocco, Mozambique, The Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Portugal, Qatar, Sarawak, Saudi Arabia, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Tanzania, Trinidad, Trucial State, Tunisia, Turkey, Uganda, Venezuela, Zaire, Zambia, Zimbabwe.
11. JOBA N.V. (The Netherlands)
12. May and Baker, Ltd. (United Kingdom)

    Other Company Manufacturer or Distributor Locations:
    Algeria, Angola, Argentina, Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Bolivia, Brazil, Canada, Canary Islands, Chile, Colombia, Costa Rica, Cyprus, Denmark, Dominica, Dominican Republic, Ecuador, El Salvador, Ethiopia, Finland, France, Germany, Ghana, Gibraltar, Greece, Guatemala, Guyana, Haiti, Honduras, Hong Kong, Iceland, India, Iran, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Malta, Mauritius, Mexico, Mozambique, The Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Portugal, Qatar, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Trinidad, Turkey, United Kingdom, United States of America, Uruguay, Venezuela, West Indies, Yugoslavia, Zaire, Zambia.
13. NIPA Laboratories, Ltd. (United Kingdom)
14. Aldrich Chemical Company, Ltd. (United Kingdom)
15. Siber Hegner and Company AG (Switzerland)
16. UCB, SA (Belgium)
17. Usvico SPA (Italy)

# Ergonovine

*Other Names*

9, 10-Didehydro-N-(2-hydroxy-1-methylethyl)-6-methylergoline-8$\beta$(S)-carboxamide; N-[$\alpha$-(hydroxymethyl)ethyl]-D-lysergamide; D-lysergic acid L-2-propanolamide; Ergometrine; Ergobasine; Ergotocine; Ergostetrine; Ergotrate; Ergoklinine; Syntometrine; Cornocentin, Ergotrate maleate; Ermetrine.

*Legitimate Uses*

Drug of choice in treating post-partum hemorrhage; oxytocic.

*Illicit Uses*

Chemical precursor of lysergic acid diethylamide (LSD); also a precursor of lysergic acid which can be chemically converted into LSD.

*Legitimate Purchasers*

Pharmaceutical and chemical suppliers.

*Annual Production (Worldwide Estimate)*

2,640 lbs. (1,200 kg)

*Annual Sales Quantity (Worldwide Estimate)*

2,640 lbs. (1,200 kg)

*Annual Sales Value—Wholesale (Worldwide Estimate)*

$4-5 million (U.S.)

*Form of Product*

White crystalline powder (darkens and decomposes on exposure to light.

*Industrial Manufacture*

Extracted from ergot (the dried sclerotium of the filamentous fungus *Claviceps purpurea* (Hypocreaceae)) which grows parasitically on rye and other gramineaceous plants. Also, chemically from lysergic acid and L-(+)-2-aminopropanol.

*Shipping Containers*

As bulk powder.

*Storage*

Tightly closed amber-colored containers in cool dry area.

*U.S. Manufacturers or Sources*

1. Roussel Corporation, New York, New York.
2. Tridom Chemical, Inc., Hauppauge, New York.
3. Bayside Research Corporation, Miami, Florida.
4. Centerchem, Inc., New York, New York.
5. Delamar, Inc., Chicago, Illinois.
6. Elanco Products Company, Division of Eli Lilly and Company, Indianapolis, Indiana.
7. Dr. Madis Laboratories, Inc., South Hackensack, New Jersey.
8. Sigma Chemical Company, St. Louis, Missouri.

*Foreign Sources*

1. Fluka A.G. (Switzerland)
   See other Company Locations under *Anthranilic Acid.*

# Ergotamine

### *Other Names*

12′-Hydoxy-2-methyl-5-α- (phenylmethyl) ergotaman-3′,6′,18-trione; Ergate, Ergomar; Ergotartrat; Exmigra; Femergin; Gymergen; Lingraine; Lingran.

### *Legitimate Uses*

A medicinal with vasoconstricting properties (specific in migraine); also veterinary application as oxytocic.

### *Illicit Uses*

Chemical precursor of lysergic acid diethylamide (LSD); also a precursor of lysergic acid which can be chemically converted into LSD.

### *Legitimate Purchasers*

Pharmaceutical and chemical suppliers.

### *Annual Production (Worldwide Estimate)*

2,900 lbs. (1,318.2 kg)

### *Annual Sales Quantity (Worldwide Estimate)*

2,900 lbs. (1,318.2 kg)

### *Annual Sales Value—Wholesale (Worldwide Estimate)*

$4-5 million (U.S.)

### *Form of Product*

White crystalline powder (darkens and decomposes on exposure to light).

### *Industrial Manufacture*

Extracted from ergot (the dried sclerotium of the fungus *Claviceps purpurea* (Hypocreaceae)) which grows parasitically on rye and other gramineaceous plants. Ergotamine is extracted from ergot with benzene after making alkaline with ammonia and recrystallizing from ethanol.

### *Shipping Containers*

As bulk powder.

### *Storage*

Tightly closed amber-colored containers in cool dry area.

### *U.S. Manufacturers or Sources*

1. Reliable Chemical Company, St. Louis, Missouri.
2. Sigma Chemical Company, St. Louis, Missouri.
3. Centerchem, Inc., New York, New York.
4. Meer Corporation, North Bergen, New Jersey.
5. Tridom Chemical, Inc., Hauppauge, New York.
6. Bayside Research Corporation, Miami, Florida.
7. Delamar, Inc., Chicago, Illinois.
8. Dormar Chemicals, Inc., Paterson, New Jersey.
9. Helm New York Chemical Corporation, New York, New York.
10. Henley and Company, Inc., New York, New York.
11. Jerdan Chemical Corporation, Valley Stream, New York.
12. Dr. Madis Laboratories, Inc., South Hackensack, New Jersey.
13. Regis Chemical Company, Morton Grove, Illinois.

### *Foreign Sources*

1. Fluka A.G. (Switzerland)
   See other Company Locations under *Anthranilic Acid.*
2. Ferak Berlin (Germany)
3. E. Merck (Germany)
4. Boehringer Ingelheim Chemicals (Germany)
5. Hutamaki-Yhtymaoy (Finland)
   Other Company Manufacturer or Distribution Locations:
   Argentina, Brazil, Colombia, Italy, Japan, Korea, Mexico, The Netherlands, Pakistan, Portugal, Spain, Taiwan, Thailand, Turkey, Venezuela.
6. G. Lindner and Company, NV (The Netherlands)
7. Carl Roth (Germany)

# N-Acetylanthranilic Acid

*Other Names*

*o*-Amidobenzoic acid; *ortho*-amidobenzoic acid.

*Legitimate Uses*

Chemical intermediate in the manufacture of pharmaceuticals, fine chemicals, and light stabilizers.

*Illicit Uses*

"Immediate" chemical precursor of methaqualone.

*Legitimate Purchasers*

Manufacturers of pharmaceuticals, plastics and chemicals.

*Annual Production (USA)*

10,000 lbs. (4,545.4 kg) *Estimate.*

*Annual Sales Quantity (USA)*

10,000 lbs. (4,545.4 kg) *Estimate.*

*Annual Sales Value—Wholesale (USA)*

$50,000 (U.S.) *Estimate.*

*Industrial Manufacture*

From anthranilic acid and acetic anhydride.

*Form of Product*

Fine white (or off-white) crystalline powder.

*Shipping Containers*

100 lbs. (45.5 kg) net fiber drums.

*Storage*

Tightly closed containers in cool dry area.

*U.S. Manufacturers*

1. Chemisphere Corporation, Boonton, New Jersey.
2. Sherwin Williams Chemicals, Division of Sherwin Williams Company, Cleveland, Ohio.

*Foreign Sources*

1. Aldrich-Europe Janssen Pharmaceutica (Belgium) See other Company Locations under *Anthranilic Acid.*
2. EGA—Chemie KG Keppler and Reif (Germany)
3. Fluka AG (Switzerland) See other Company Locations under *Anthranilic Acid.*
4. NIPA Laboratories, Ltd. (United Kingdom)
5. Aldrich Chemical Company, Ltd. (Ralph N. Emanuel, Ltd.) (United Kingdom)
6. ACNA SPA (Italy) See other Company Locations under *Anthranilic Acid.*

# Phenylacetic Acid

### *Other Names*

Benzeneacetic acid, $\alpha$-toluic acid; salts: sodium salt of phenylacetic acid (sodium phenylacetate), potassium salt of phenylacetic acid (potassium phenylacetate).

### *Legitimate Uses*

Chemical intermediate to manufacture phenylacetate esters and amphetamines; also a precursor in the manufacture of penicillins, especially Penicillin G; also in fragrance applications; and additive in cleaning solutions.

### *Illicit Uses*

Chemical precursor of amphetamine, methamphetamine, and their "immediate precursor," phenylacetone.

### *Legitimate Purchasers*

Pharmaceutical manufacturers of penicillins and other medicinals. In 1978, purchasers included firms in the USA, France, and Brazil.

### *Annual Production (USA)*

4,500,000 lbs. (2,045,455 kg) *Estimate.* Numbers represent sales to wholesalers.

### *Annual Sales Quantity (USA)*

4,473,300 lbs. (2,033,318 kg) *Estimate.* Also 26,000 lbs. (11,818 kg) exported.

### *Annual Sales Value—Wholesale (USA)*

$4,010,095 (U.S.)

### *Form of Product*

The product is sold as a liquid solution that contains 50% phenylacetic acid (minimum), the balance being water (pH is approximately 7.0). Phenylacetic acid (non-salt form) is a white powder with a very disagreeable pungent odor.

### *Industrial Manufacture*

Reaction of benzyl cyanide and alkali (caustic potash).

### *Shipping Containers*

Phenylacetic acid is generally sold in 4,000 gallon (15,140 liter) lots, shipped by bulk tank truck or car. Occasionally some is sold in 55 gallon (208.2 liter) drums containing 540 lbs. (245.5 kg) net per drum. Usually the potassium salt solution is sold in drums to prevent its freezing.

### *Storage*

The material can be stored in liquid solutions of the sodium or potassium salts in carbon steel tanks. However, the sodium salt solution must have heat available because it freezes at about 10°C, whereas the potassium salt solution remains liquid at any temperature likely to be encountered. Phenylacetic acid (the non-salt form) should be stored in dark bottles in a cool dry area.

### *U.S. Manufacturers*

1. Chemisphere Corporation, Boonton, New Jersey.
2. Givaudan Corporation, Clifton, New Jersey.
3. Stauffer Chemical Company, Westport, Connecticut.
4. Orbis Products Corporation, New York, New York.

### *Foreign Sources*

1. Stauffer Chemical Europe SA (Switzerland).

# Phenyl-2-Propanone

*Other Names*

1-Phenyl-2-propanone; phenylacetone; P2P; benzyl methyl ketone; methyl benzyl ketone.

*Legitimate Uses*

Chemical precursor of amphetamine, methamphetamine, and propylhexedrine by pharmaceutical manufacturers; also as analytical standard in chemistry laboratories and universities; and, cleaning solution additive.

*Illicit Uses*

Chemical precursor of amphetamine and methamphetamine; controlled as an "immediate precursor" in the United States in Schedule II of the U.S. Controlled Substances Act (February 11, 1980).

*Legitimate Purchasers*

Pharmaceutical manufacturing companies and chemical supply companies.

*Annual Production (USA)*

16,000 lbs. (7272.7 kg) (Prior to 1980)

*Annual Sales Quantity (USA)*

17,000 lbs. (7,727.2 kg) (Prior to 1980)

*Annual Sales Value—Wholesale (USA)*

$125,000 (U.S.) (Prior to 1980)

*Form of Product*

Clear, high boiling, moderately viscous liquid.

*Industrial Manufacture*

Acid catalyzed decarboxylation of phenylacetic acid.

*Shipping Containers*

55 gallon (208.2 liter) drums containing 460 lbs. (209.1 kg) net.

*Storage*

Tightly closed containers in cool dry area.

*U.S. Manufacturers*

1. Roehr Chemicals, Inc., Division of Aceto Chemical Co., Inc., Long Island City, New York (discontinued in 1980).
2. Smith-Kline Corporation, Philadelphia, Pennsylvania (for internal use only—not for distribution or sales).

*Foreign Sources*

1. Baker Chemicals BV (The Netherlands)
   See other Company Locations under *Anthranilic Acid*.
2. Fluka A.G. (Switzerland)
   See other Company Locations under *Anthranilic Acid*.
3. Ferak Berlin (Germany)
4. Aldrich-Europe Janssen Pharmaceutica (Belgium)
   See other Company Locations under *Anthranilic Acid*.
5. EGA-Chemie KG Keppler and Reif (Germany)
6. NIPA Laboratories, Ltd. (United Kingdom)
7. Aldrich Chemical Company, Ltd. (United Kingdom)
8. Knoll A.G., Chemische Fabriken (Germany)
9. Siber Hegner and Company A.G. (Switzerland)

# Piperidine

***Other Names***

Hexahydropyridine.

***Legitimate Uses***

A solvent and intermediate curing agent for rubber and epoxy resins; ingredient in oils and fuels; complexing agent; catalyst for condensation reactions.

***Illicit Uses***

Chemical precursor of phencyclidine (PCP).

Transactions involving its manufacture, sales, and distribution are reported to the U.S. Drug Enforcement Administration as required by the Psychotropic Substances Act of 1978.

***Legitimate Purchasers***

Manufacturers of rubber products, plastics, and pharmaceuticals; also, analytical laboratories in research institutes, universities, etc.

***Annual Production (USA)***

509,000 lbs. (231,364 kg)

***Annual Sales Quantity (USA)***

500,000 lbs. (227,273 kg) *Estimate.*

***Annual Sales Value—Wholesale (USA)***

Unknown.

***Form of Product***

Colorless liquid with odor of pepper; soapy feel; soluble in water, alcohol, and ether; combustible.

***Industrial Manufacture***

By electrolytic reduction of pyridine.

***Shipping Containers***

Drums.

***Storage***

Tightly closed containers in cool dry area.

***U.S. Manufacturers***

1. Abbott Laboratories, North Chicago, Illinois.
2. Reilly Tar and Chemical Corporation, Indianapolis, Indiana.

***Foreign Sources***

1. Aldrich-Europe Janssen Pharmaceutica (Belgium)
   See other Company Locations under *Anthranilic Acid.*
2. Baker Chemicals BV (The Netherlands)
   See other Company Locations under *Anthranilic Acid.*
3. D.G. Bennett Chemicals, Ltd. (United Kingdom)
4. B.H. Schilling (Italy)
5. Farbenfabriken Bayer A.G. (Germany)

   Other Manufacturer or Distributor Locations:
   Aden, Angola, Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Burma, Canada, Chile, Colombia, Costa Rica, Cuba, Cyprus, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Finland, France, Ghana, Greece, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Korea, Kuwait, Lebanon, Madagascar, Malaysia, Martinique, Mexico, Morocco, Mozambique, The Netherlands, Netherland Antilles, Nicaragua, Nigeria, Norway, Panama, Paraguay, Peru, Philippines, Portugal, Puerto Rico, Senegal, Singapore, Somalia, South Africa, South West Africa, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Trinidad, Tunisia, Turkey, Uganda, United Kingdom, United States of America, Uruguay, Venezuela, Yugoslavia, Zimbabwe.
6. EGA-Chemie KG Keppler and Reif (Germany)
7. Fluka A.G. (Switzerland)
   See other Company Locations under *Anthranilic Acid.*
8. Ferak Berlin (Germany)
9. Heybroek and Company N.V. (The Netherlands)
10. Koch-Light Laboratories, Ltd. (United Kingdom)

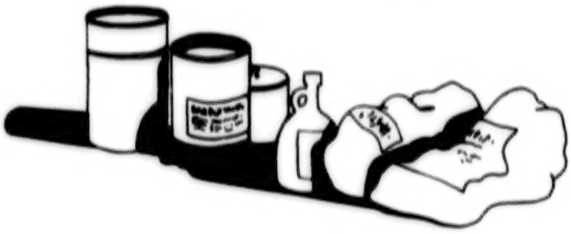
    Other Company Manufacturer or Distributor Locations:
    Argentina, Australia, Belgium, Chile, Finland, France, Greece, Iran, Ireland, Italy, Mexico, The Netherlands, New Zealand, Norway, Portugal, South Africa, Switzerland.
11. May and Baker, Ltd. (United Kingdom)
    See other Company Locations under *Anthranilic Acid.*
12. E. Merck (Germany)
13. Reilly Tar and Chemical Corporation (United Kingdom)
14. Aldrich Chemical Company, Ltd. (Ralph N. Emanuel, Ltd.) (United Kingdom)
15. Robinson Brothers, Ltd. (United Kingdom)

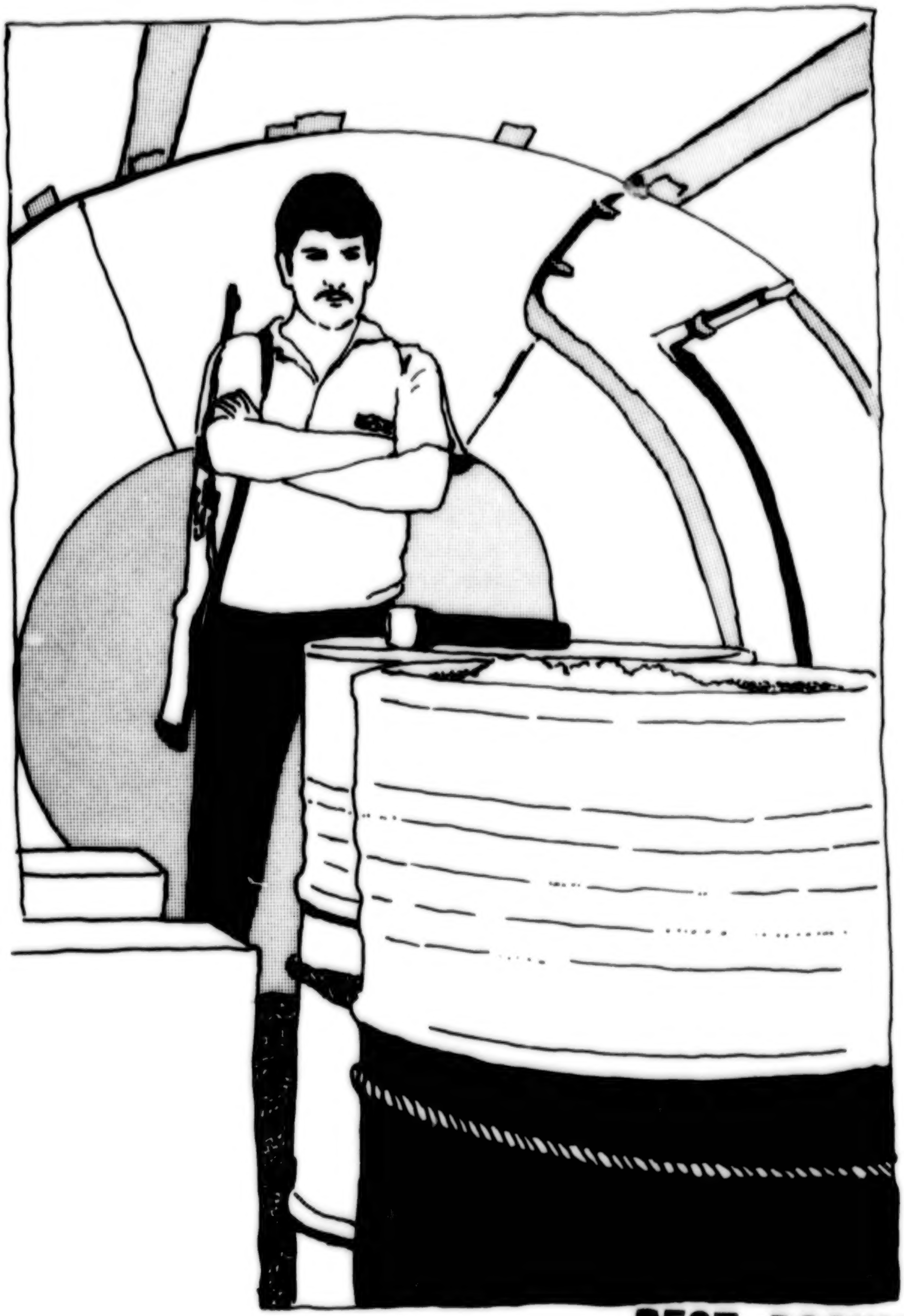
    Other Company Manufacturer or Distributor

Locations:
Argentina, Australia, Austria, Bahrain, Belgium, Brazil, Bulgaria, Canada, Chile, Colombia, Cyprus, Czechoslovakia, Denmark, Ecuador, El Salvador, Finland, France, Germany, Greece, Guatemala, Hong Kong, Hungary, India, Iraq, Israel, Italy, Jamaica, Japan, Kenya, New Zealand, Norway, Peru, Portugal, Puerto Rico, Rumania, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Turkey, Uruguay, Venezuela.

16. Carl Roth (Germany)
17. Siber Hegner and Company, Inc. (Switzerland)
18. UCB, SA (Belgium)

# Chemical Solvents and Reagents





# Acetone

*Other Names*

2-Propanone; dimethyl ketone; β-ketopropane; pyroacetic acid.

*Legitimate Uses*

Acetone is used primarily as a solvent and chemical intermediary for a variety of substances, including plastics, paints, lubricants, pharmaceuticals, cosmetics and agricultural products.

*Illicit Uses*

As a solvent in processing opium and coca leaves, leading to the manufacture of heroin and cocaine, respectively.

*Legitimate Purchasers*

Manufacturers of pharmaceuticals, paints, oils, agricultural products, plastics, cosmetics and other chemicals; also chemical suppliers and the coating industry.

*Annual Production (USA)*

2.5 billion lbs. (1.13 billion kg) *Estimate.*

*Annual Sales Quantity (USA)*

Undetermined: Amount of acetone produced is also related to needs for phenol which is a by-product of cumene process. Acetone production is well below industrial plant capacity.

*Annual Sales Value—Wholesale (USA)*

Based on production, estimated sales value is approximately $400 million (U.S.).

*Form of Product*

Acetone is a colorless, mobile, flammable liquid with a mildly pungent and somewhat aromatic odor. It is considered to be generally non-toxic, although direct contact should be avoided.

*Industrial Manufacture*

1. Major United States Processes
   a) From oxidation of cumene (a natural product in petroleum or synthesized from benzene), acetone and phenol (by-product) are produced.
   b) From oxidation of isopropyl alcohol.
2. Other Processes
   a) Oxidation of propylene.
   b) Conversion of carbohydrates (corn starch, molasses) by use of a special bacillus fungus.
   c) From calcium acetate.

*Shipping Containers*

Acetone is transported in steel drums, tank trucks, and rail cars. U.S. transportation regulations require a red diamond shaped "flammable liquid" label attached to all shipping containers because of acetone's low flash point. Maximum allowable shipment on passenger-carrying aircraft is 946 cubic centimeters (1 quart) and 0.0378 cubic meters (10 gallons) for cargo aircraft.

*Storage*

Acetone is stored in steel tanks. It must be used with adequate ventilation, stored in closed containers and kept away from heat, sparks and flames. Fires may be controlled with carbon dioxide or dry chemical extinguishers. Explosion hazard of acetone vapor is moderate. There have been no reported serious chronic effects in humans on prolonged inhalation.

*U.S. Manufacturers*

1. Aceto Chemical Company, Flushing, New York.
2. Dow Chemical Company, Midland, Michigan.
3. Eastman Chemical Products, Inc., Kingsport, Tennessee.
4. Exxon Chemical Company, USA, Houston, Texas.
5. Goodyear Tire and Rubber Company, Chemical Division, Akron, Ohio.
6. IMC Chemical Group, Inc., Sobin International Chemicals, Boston, Massachusetts.
7. Monsanto, St. Louis, Missouri.
8. Publicker Industries, Inc., Philadelphia, Pennsylvania.
9. Shell Chemical Company, Chemical Sales, Houston, Texas.
10. Skelly Oil Company, Tulsa, Oklahoma.
11. Union Carbide Corporation, Chemicals and Plastics, New York, New York.
12. USS Chemicals, Division of United States Steel, Pittsburgh, Pennsylvania.

*Foreign Sources*

1. AMSCO International GMBH (Germany)
2. Aldrich-Europe Janssen Pharmaceutica (Belgium)
   See other Company Locations under *Anthranilic Acid.*
3. Baker Chemicals BV (The Netherlands)
   See other Company Locations under *Anthranilic Acid.*
4. BDH Chemicals Ltd.—Overseas Division (United Kingdom)

See other Company Locations under *Anthranilic Acid.*

5. B.H. Schilling (Italy)
6. BP Chemicals International, Ltd. (United Kingdom)
7. British Tar Products, Ltd. (United Kingdom)
   Other Company Manufacturer or Distributor Locations:
   Argentina, Australia, Canada, Denmark, France, Germany, Ireland, Israel, Italy, The Netherlands, New Zealand, South Africa, Spain, Sweden, Switzerland, United States of America, Uruguay.
8. British Celanese Exports (United Kingdom)
   Other Company Manufacturer or Distributor Locations:
   Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Guatemala, India, Israel, Italy, The Netherlands, New Zealand, Norway, Pakistan, Philippines, Portugal, South Africa, Spain, Sri Lanka, Sweden, Switzerland, United States of America, Uruguay, Yugoslavia.
9. Deutsche Erdol (Texaco) A.G. (Germany)
   Other Company Manufacturer or Distributor Locations:
   United Kingdom, United States of America.
10. EGA-Chemie KG Keppler and Reif (Germany)
11. Essochem Iberia, S.A. (France)
12. ESSO Chemica SPA (Italy)
13. Fluka A.G. (Switzerland—also USA)
14. Ferak Berlin (Germany)
15. Guido Tazzetti and Company (Italy)
16. Hopkin and Williams (United Kingdom)
    See other Company Locations under *Anthranilic Acid.*
17. Holzhaus Sembodja Chemical (The Netherlands)
18. Farbwerke Hoechst A.G. (Germany)
19. Feddersen, K.D. and Company (Germany)
20. Koch-Light Laboratories, Ltd. (United Kingdom)
    See other Company Locations under *Piperidine.*
21. Krahn Chemie (Germany)
    Other Company Manufacturer or Distributor Locations:
    Japan, Switzerland, United Kingdom, United States of America.
22. Loeffler Karl, KG (Germany)
23. Lonza, Ltd., (Switzerland)
24. May and Baker, Ltd. (United Kingdom)
    See other Company Locations under *Anthranilic Acid.*
25. Montecatini Edison S.P.A. (Italy)
    See other Company Locations under *Acetic Anhydride.*
26. Monsanto Europe S.A. (Belgium)
    Other Company Manufacturer or Distributor Locations:
    Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, The Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, Yugoslavia.
27. E. Merck (Germany)
28. Naphtachimie S.A. (France)
    Other Company Manufacturer or Distributor Locations:
    Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Ghana, Greece, Hong Kong, India, Iran, Israel, Italy, Ivory Coast, Japan, Kenya, Lebanon, Malaysia, Mexico, Morocco, The Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Singapore, South Africa, Sweden, Switzerland, Syria, Taiwan, Thailand, Tunisia, United Kingdom, United States of America, Venezuela, Zimbabwe.
29. Panreac-Montplet and Esteban S.L. (Spain)
30. Phenolchemie GMBH (Germany)
31. Pierce Eurochemie BV (The Netherlands)
32. Rex Campbell and Company, Ltd. (United Kingdom)
33. Aldrich Chemical Company, Ltd. (Ralph N. Emanuel, Ltd.) (United Kingdom)
34. Carl Roth (Germany)
35. Shell Chemie SA (France)
36. Shell Chemicals Ltd. (United Kingdom)
37. Touzart and Matignon (France)
38. Totte and Cie. NV (The Netherlands)
39. UCB, SA (Belgium)
40. Usvico SPA (Italy)
41. Wehako (The Netherlands)
42. Riedel-De Haen AG (Germany—also USA)
43. Hetako SA (Switzerland)

# Ethyl Ether

*Other Names*

1,1′-Oxybisethane; ethoxyethane; ether; diethyl ether; ethyl oxide; diethyl oxide; sulfuric ether, anesthetic ether.

*Legitimate Uses*

Ethyl ether has a wide range of uses in the chemical industry. It is a good solvent or extractant for fats, waxes, oils, perfumes, resins, dyes, gums and alkaloids. It is an excellent solvent for the manufacture of munitions and plastics. It is also used as a denaturant in several denaturant alcohol formulas. It has been used as a starting fuel for diesel engines and as a general anesthetic in surgery. It is also used as a commercial source of ethylene in plants that do not have access to petroleum refinery gases. The recent estimated use pattern is as follows: solvents and military production of smokeless powder, 65%; chemical synthesis, 25%; general anesthetic and other medicinal uses, 3%; miscellaneous uses, 7%.

*Illicit Uses*

As a solvent in processing opium and coca leaves, leading to the manufacture of heroin and cocaine.

*Legitimate Purchasers*

Ethyl ether is used by the petrochemical, plastics, rubber, munitions, pharmaceutical and chemical industries; also in medicine, as a general anesthetic; also in analytical laboratories.

*Annual Production (USA)*

63 million lbs. (28.6 million kg) *Estimate*—Plant capacity is at least 100 million lbs. (45.5 million kg).

*Annual Sales Quantity (USA)*

Variable—During World War II and the Viet Nam War, large quantities were used in manufacture of munitions, thereby resulting in high production during those years.

*Annual Sales Value—Wholesale (USA)*

$15.2 million (U.S.) *Estimate*—An enormous price increase occurred in the 1970's due largely to oil-price increases imposed by OPEC nations.

*Form of Product*

Ethyl ether is a colorless, very volatile, highly flammable liquid with a sweet pungent odor and burning taste. Its toxicity is low and recovery from sublethal concentrations is rapid and generally complete. When exposed to the vapor of any appreciable concentration, the individual should be promptly removed from the immediate area. The effect of ether owing to ingestion, skin contact, or inhalation may include drowsiness, and irritation of the nose, throat, and mucous membranes. Prolonged or repeated contacts of ether with skin cause tissue defatting and dehydration leading to dermatitis.

*Industrial Manufacture*

1. Ethyl ether is a by-product in industrial manufacture of ethanol; it is synthesized from ethylene and water with phosphoric acid catalyst.
2. Ethyl ether is also manufactured from reaction of ethanol and sulfuric acid.

*Shipping Containers*

Tank cars and boxcars. All possible care should be taken in loading and unloading tank cars. Each container must carry an identifying label or stencil. Ethyl ether is classified by the U.S. Interstate Commerce Commission as a flammable liquid and, therefore, must be packed in ICC specification containers when shipped by rail, water, or highway. Each drum or box with inside containers must bear the ICC red label for flammable liquids.

*Storage*

Ethyl ether is a hazardous chemical because it is highly flammable. Besides being highly volatile, it also has a low autoignition temperature and can generate static electricity that can result in ignition or explosion. In the presence of air, light, or prolonged storage unstable and explosion-prone peroxides form. Therefore, ethyl ether should be stored in cool, dark, well ventilated areas in tightly closed inert containers for limited time periods. If an ether fire occurs, carbon dioxide or dry chemical fire extinguishers should be used.

*U.S. Manufacturers*

1. Hercules, Inc., Wilmington, Delaware.
2. E.R. Squibb & Sons, Inc., Princeton, New Jersey.
3. Publicker Industries, Inc., Philadelphia, Pennsylvania.
4. Union Carbide Corporation, Chemicals and Plastics, New York, New York.
5. U.S. Industrial Chemicals Company, New York, New York.

*Foreign Sources*

1. AMSCO International GMBH (Germany)
2. B.H. Schilling (Italy)

3. Fluka A.G. (Switzerland)
   See other Company Locations under ***Anthranilic Acid.***
4. Farbwerke Hoechst A.G. (Germany)
5. May and Baker, Ltd. (United Kingdom)
   See other Company Locations under ***Anthranilic Acid.***
6. Sodes (France)
7. Touzart and Matignon (France)

# Acetic Anhydride

*Other Names*

Acetic oxide; acetyl oxide; acetic acid anhydride; ethanoic anhydride.

*Legitimate Uses*

In the USA, approximately 95% of the total production is used to manufacture cellulose esters (cellulose acetate). Other uses are to make textile sizing agents, aspirin, and in polishing metals. An undetermined quantity is used to manufacture other chemicals (chloroacetic acid, acetyl chloride, etc.).

*Illicit Uses*

Reactant with morphine to yield heroin.

*Legitimate Purchasers*

Textile industry, pharmaceutical industry, and chemical suppliers (diverse industrial applications).

*Annual Production (USA)*

1.51 billion lbs. (686 million kg)

*Annual Sales Quantity (USA)*

1.51 billion lbs. (686 million kg)

*Annual Sales Value—Wholesale (USA)*

$350 million (U.S.) *Estimate*

*Form of Product*

Acetic anhydride is a colorless liquid with a penetrating choking odor. It fumes in moist air, and its vapors are extremely irritating to eyes, nose and throat. It is highly toxic and decomposes with water and alcohol; mixtures with nitric acid are explosive.

*Industrial Manufacture*

1. From acetic acid.
2. From acetone.
3. From acetaldehyde.

*Shipping Containers*

Tank cars and in bulk.

*Storage*

In dark, dry, and tightly closed containers to avoid decomposition due to air and moisture.

*U.S. Manufacturers*

1. Celanese Chemical Company, Inc., Dallas, Texas.
2. Eastman Chemical Products, Inc., Kingsport, Tennessee.
3. Union Carbide Corporation, New York, New York.
4. Ashland Chemical Company, Columbus, Ohio.
5. FMC, Philadelphia, Pennsylvania.
6. Monsanto Company, St. Louis, Missouri.

*Foreign Sources*

1. Aldrich Chemical Company, Ltd. (Ralph N. Emanuel, Ltd.) (United Kingdom)
2. Aldrich-Europe Janssen Pharmaceutica (Belgium)
   See other Company Locations under *Anthranilic Acid*.
3. BDH Chemicals Ltd.-Overseas Division (United Kingdom)
   See other Company Locations under *Anthranilic Acid*.
4. Blagden Campbell Chemicals, Ltd. (United Kingdom)
5. BP Chemicals International, Ltd. (United Kingdom)
6. Cambrian Chemicals (United Kingdom)
7. Chemproha (The Netherlands)
8. Dr. Franz Grossman KG (Germany)
9. EGA-Chemie KG Keppler and Reif (Germany)
10. Feddersen, K.D. and Company (Germany)
11. Ferak Berlin-E. Gruendemann OHG (Germany)
12. Fluka A.G. (Switzerland—also USA)
13. Guido Tazzetti and Co. (Italy)
15. Hoechst AG (Germany)
16. Hopkin and Williams (United Kingdom)
    See other Company Locations under *Anthranilic Acid*.
17. Jorge Domineo Molina (Spain)
18. Koch-Light Laboratories, Ltd. (United Kingdom)
    See other Company Locations under *Piperidine*.
19. Lonza, Ltd. (Switzerland)
20. May and Baker, Ltd. (United Kingdom)
    See other Company Locations under *Anthranilic Acid*.
21. Montecatini Edison (Italy)

    Other Company Manufacturer or Distributor Locations:
    Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, Egypt, Ethiopia, France, Germany, Greece, India, Iran, Ivory Coast, Japan, Kenya, Lebanon, Mexico, The Netherlands, Portugal, Singapore, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States of America, Venezuela.
22. Rhone Poulenc S.A. (France)

    Other Company Manufacturer or Distributor

Locations:

Afghanistan, Algeria, Argentina, Australia, Austria, Bahrain, Belgium, Brazil, Burma, Canada, Chile, Colombia, Costa Rica, Denmark, Ecuador, Egypt, El Salvador, Ethiopia, Finland, Germany, Ghana, Greece, Guatemala, Hong Kong, India, Indonesia, Iran, Israel, Italy, Ivory Coast, Japan, Kenya, Korea, Kuwait, Lebanon, Madagascar, Malaysia, Martinique, Mexico, Morocco, Mozambique, The Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Paraguay, Peru, Philippines, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Taiwan, Thailand, Tunisia, Turkey, United Kingdom, United States of America, Uruguay, Venezuela, Yugoslavia, Zaire.

23. Riedel-De Haen AG (Germany—also USA)
24. UCB S.A. (Belgium)
25. Usvico S.P.A. (Italy)
26. Wacker-Chemie GMBH (Germany)

Other Company Manufacturer or Distributor Locations:

Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom.

# Acetyl Chloride

*Other Names*

Ethanoyl chloride.

*Legitimate Uses*

Acetyl chloride is used in complex organic chemical manufacture. It is also employed in the synthesis of pharmaceuticals and dyes. Specialty applications include its use in chemical determinations, as a catalyst, in manufacturing lubricating grease, in polymerization processes and manufacture of rubber.

*Illicit Uses*

Reactant with morphine to yield heroin; substitute for acetic anhydride.

*Legitimate Purchasers*

Manufacturers of pharmaceuticals, dyes, textiles, rubber, polymers; also, chemical suppliers and distributors.

*Annual Production (USA)*

Between 720,000-900,000 lbs. (327,000-409,000 kg) *Estimate*

*Annual Sales Quantity (USA)*

Between 720,000-900,000 lbs. (327,000-409,000 kg) *Estimate*

*Annual Sales Value—Wholesale (USA)*

Between $785,000-$1,320,000 (U.S.)

*Form of Product*

Acetyl chloride is a colorless liquid with a pungent odor; it is highly toxic and corrosive and a strong irritant. Its vapor forms explosive mixtures with air and it reacts violently with water. Fumes are extremely irritating to the eyes, nose, and throat. Spills or leakage of acetyl chloride should be treated with sodium bicarbonate. Acetyl chloride is easily hydrolyzed into acetic acid and hydrochloric acid by body moisture. It also has a toxic effect due to its reaction with some protein molecules.

*Industrial Manufacture*

1. From reaction of acetic anhydride and hydrogen chloride.
2. From reaction of acetic acid and phosphorus trichloride or 1,1,2-trichloroethylene or 1,1,1-trichloroethane or sulfur monochloride or thionyl chloride.

*Shipping Containers*

Acetyl chloride is shipped in 220 liter (58 gallon) polyethylene-lined drums and in 100 g and 500 g packages. The U.S. product carries the U.S. Department of Transportation White Label designation for a corrosive substance.

*Storage*

Tightly closed containers in cool dry area with good ventilation. Proper protective clothing should be worn when handling. Indoor storage should be in an area for flammables separate from noncorrosive flammables.

*U.S. Manufacturers*

1. Allied Chemical Corporation, Specialty Chemicals Division, Morristown, New Jersey.
2. Air Products & Chemicals, Inc., Specialty Gas Department, Allentown, Pennsylvania.
3. White Chemical Corporation, Bayonne, New Jersey.

*Foreign Sources*

1. AKZO Chemie BV (The Netherlands)
2. Albright & Wilson, Ltd. (United Kingdom)
   Other Company Manufacturer or Distributor Locations:
   Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Malta, Morocco, The Netherlands, Northern Ireland, Portugal, Spain, Sweden, Switzerland, Trinidad, Turkey.
3. Aldrich Chemical Company, Ltd. (Ralph N. Emanuel, Ltd.) (United Kingdom)
4. Aldrich-Europe Janssen Pharmaceutica (Belgium)
   See other Company Locations under *Anthranilic Acid.*
5. Armeco S.A. (Switzerland)
6. Baker Chemicals BV (The Netherlands)
   See other Company Locations under *Anthranilic Acid.*
7. BDH Chemicals, Ltd.—Overseas Division (United Kingdom)

   See other Company Locations under *Anthranilic Acid.*
8. B.H. Schilling (Italy)
9. Cambrian Chemicals (United Kingdom)
10. EGA-Chemie KG Keppler and Reif (Germany)
11. Ferak Berlin—E. Gruendemann OHG (Germany)
12. Heybroek & Company, N.V. (The Netherlands)
13. Hoechst AG (Germany)

14. Hoechst AG Werke Knapsack (Germany)
15. Hopkin & Williams (United Kingdom)
    See other Company Locations under *Anthranilic Acid.*
16. I.C.N. Life Sciences Group (Belgium)
17. Interchim (France)
18. Koch-Light Laboratories, Ltd. (United Kingdom)
    See other Company Locations under *Piperidine.*
19. May & Baker, Ltd. (United Kingdom)

    See other Company Locations under *Anthranilic Acid.*
20. Reidel-De Haen AG (Germany)
21. Soc. Versaillaise de Produits Chimiques (France)
22. UCB S.A. (Belgium)

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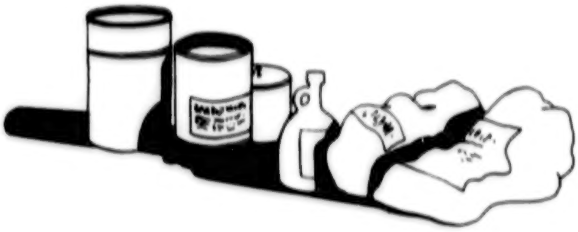
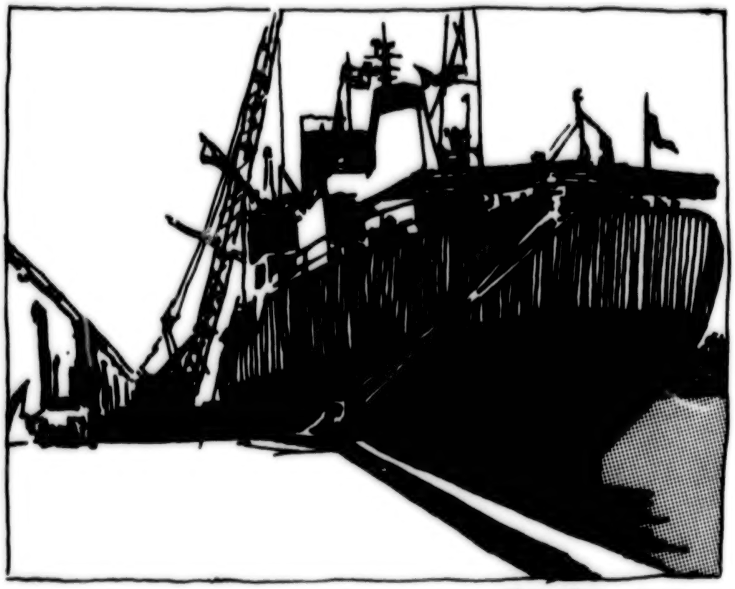
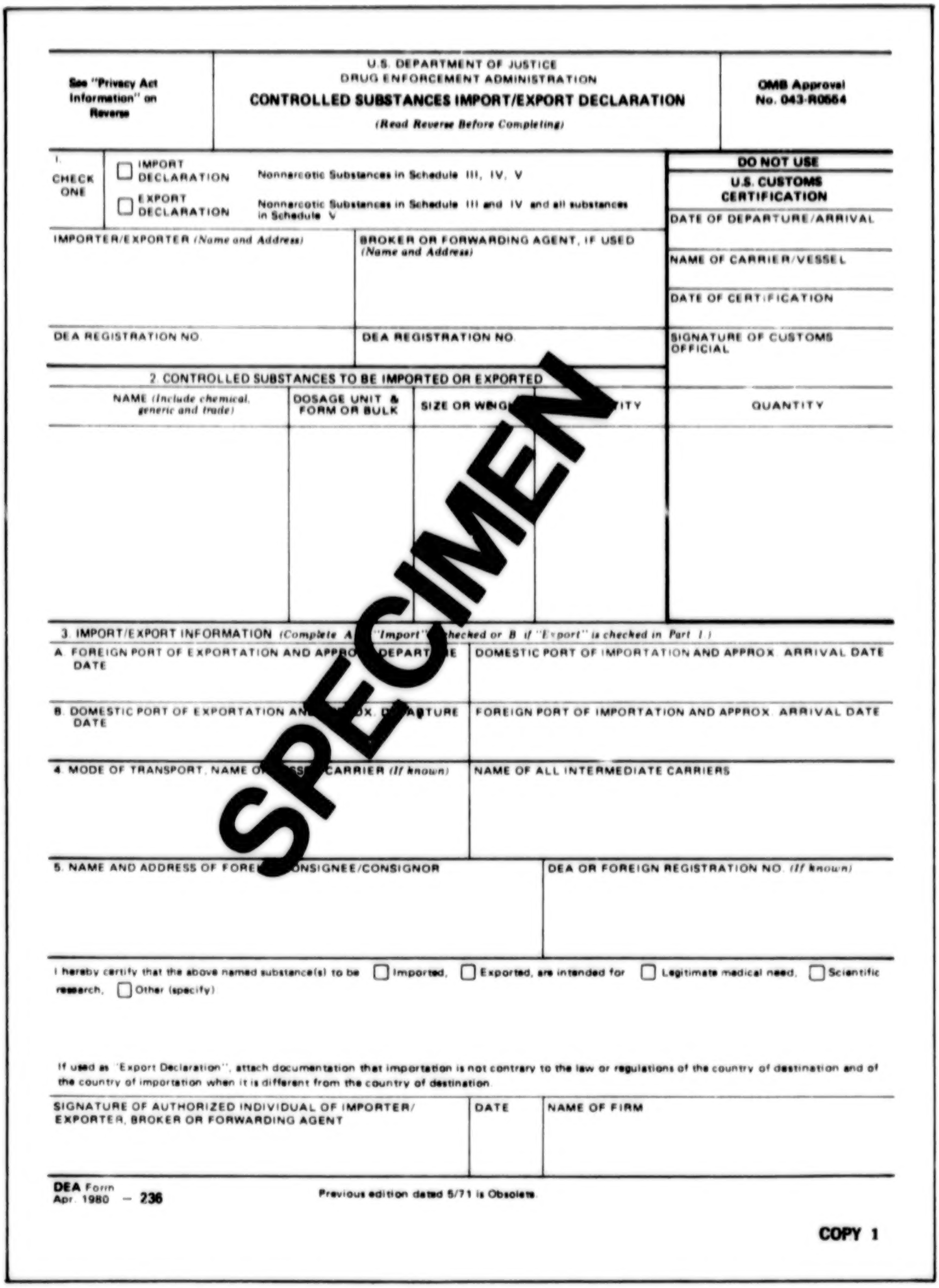
# Pictorials





The following pictorials display some of the important documents and graphics described in the preceding sections.



See "Privacy Act Information" on Reverse

U.S. DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
**CONTROLLED SUBSTANCES IMPORT/EXPORT DECLARATION**
*(Read Reverse Before Completing)*

OMB Approval No. 043-R0554

1. CHECK ONE
☐ IMPORT DECLARATION — Nonnarcotic Substances in Schedule III, IV, V
☐ EXPORT DECLARATION — Nonnarcotic Substances in Schedule III and IV and all substances in Schedule V

DO NOT USE
U.S. CUSTOMS CERTIFICATION
DATE OF DEPARTURE/ARRIVAL
NAME OF CARRIER/VESSEL
DATE OF CERTIFICATION
SIGNATURE OF CUSTOMS OFFICIAL

IMPORTER/EXPORTER *(Name and Address)*
BROKER OR FORWARDING AGENT, IF USED *(Name and Address)*
DEA REGISTRATION NO.
DEA REGISTRATION NO.

2. CONTROLLED SUBSTANCES TO BE IMPORTED OR EXPORTED

| NAME *(Include chemical, generic and trade)* | DOSAGE UNIT & FORM OR BULK | SIZE OR WEIG[illegible] | [illegible]ITY | QUANTITY |
|---|---|---|---|---|
| | | | | |

3. IMPORT/EXPORT INFORMATION *(Complete A [illegible] "Import" [illegible]hecked or B if "Export" is checked in Part 1.)*
A. FOREIGN PORT OF EXPORTATION AND APPRO[illegible] DEPART[illegible]E DATE
DOMESTIC PORT OF IMPORTATION AND APPROX. ARRIVAL DATE
B. DOMESTIC PORT OF EXPORTATION AN[illegible]OX. D[illegible]ARTURE DATE
FOREIGN PORT OF IMPORTATION AND APPROX. ARRIVAL DATE
4. MODE OF TRANSPORT, NAME O[illegible] CARRIER *(If known)*
NAME OF ALL INTERMEDIATE CARRIERS
5. NAME AND ADDRESS OF FORE[illegible]ONSIGNEE/CONSIGNOR
DEA OR FOREIGN REGISTRATION NO. *(If known)*

I hereby certify that the above named substance(s) to be ☐ Imported, ☐ Exported, are intended for ☐ Legitimate medical need, ☐ Scientific research, ☐ Other (specify)

If used as "Export Declaration", attach documentation that importation is not contrary to the law or regulations of the country of destination and of the country of importation when it is different from the country of destination.

SIGNATURE OF AUTHORIZED INDIVIDUAL OF IMPORTER/EXPORTER, BROKER OR FORWARDING AGENT
DATE
NAME OF FIRM

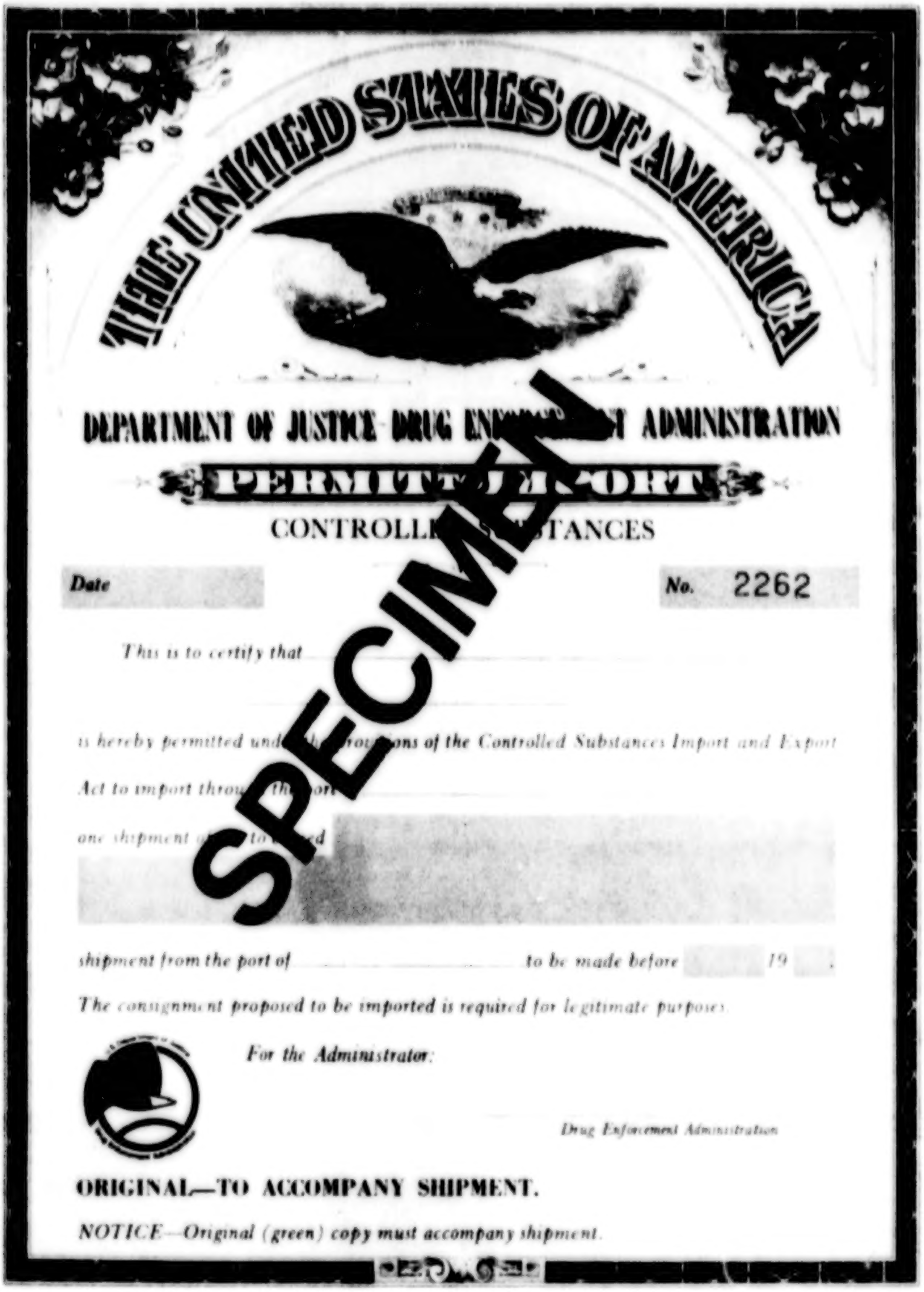
**DEA** Form
Apr. 1980 — **236**

Previous edition dated 5/71 is Obsolete.

**COPY 1**

United States authorization to import/export nonnarcotic substances in Schedules III, IV and V; a copy of this document will accompany an authorized import/export.

**BEST DOCUMENT AVAILABLE**



THE UNITED STATES OF AMERICA

**DEPARTMENT OF JUSTICE DRUG ENFORCEMENT ADMINISTRATION**

**PERMIT TO IMPORT**

CONTROLLED SUBSTANCES

SPECIMEN

**Date**

**No.** 2262

*This is to certify that*

*is hereby permitted under the provisions of the Controlled Substances Import and Export Act to import through the port*

*one shipment of [illegible]*

*shipment from the port of* *to be made before* *19* .

*The consignment proposed to be imported is required for legitimate purposes.*

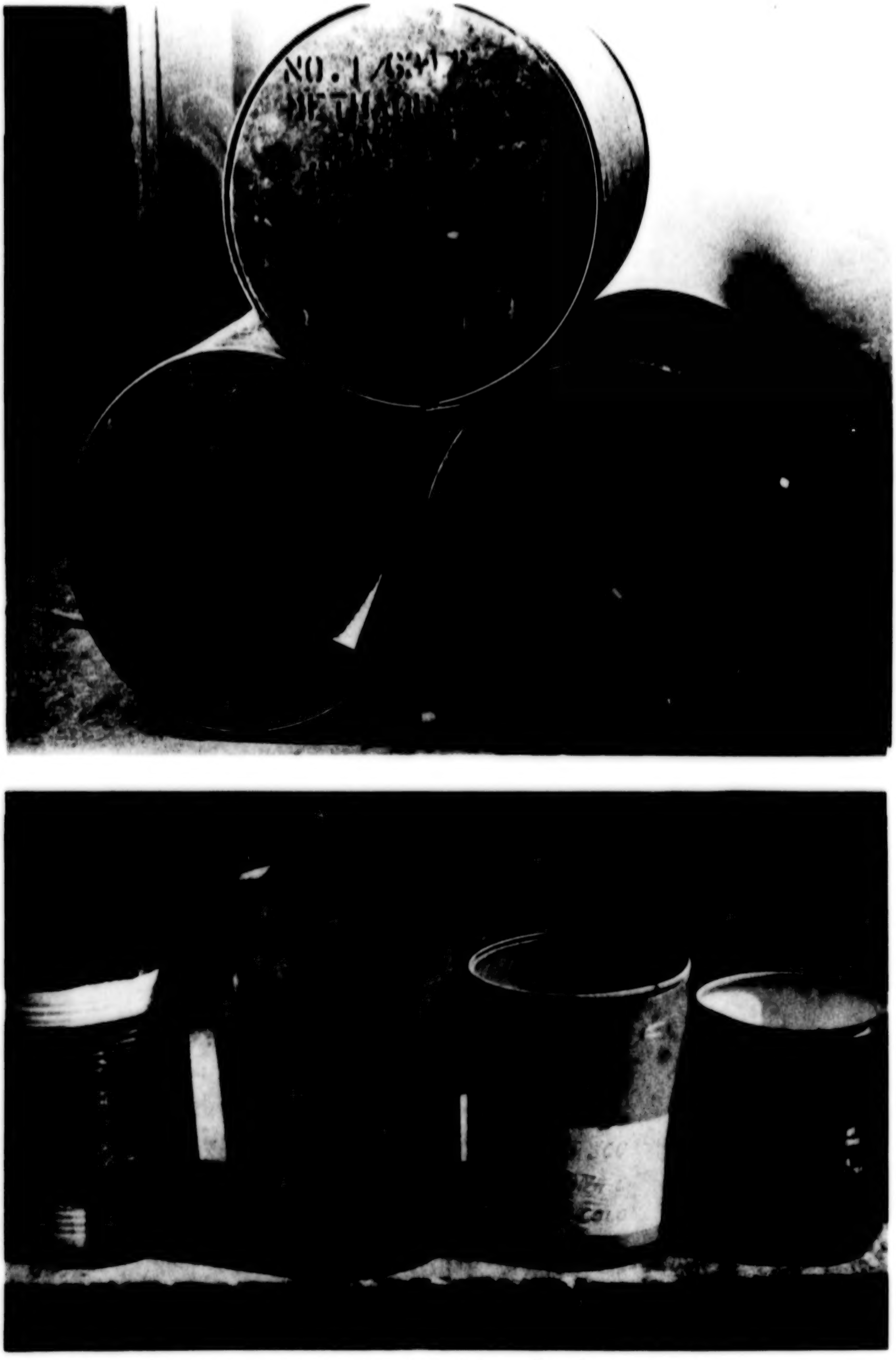
*For the Administrator:*

*Drug Enforcement Administration*

**ORIGINAL—TO ACCOMPANY SHIPMENT.**

*NOTICE—Original (green) copy must accompany shipment.*

Methaqualone shipping containers seized in international commerce.



Methaqualone shipping containers seized in international commerce.

NOTICE OF TRANS-SHIPMENT

Name of Shipper
  (Exporter)
Address

Date:

U.S. Department of Justice
Attn: Drug Enforcement Administration
1405 I Street, Northwest
Washington, D.C. 20537
Office of Compliance and Regulatory
   Affairs

This letter is to inform you of a trans-shipment through the U.S. port of __________, that will take place on or about the week of __________ 1981. We hereby give 15 days advance notice, and list the following details for your information.

1) Identification and description of the controlled substance.
2) Net quantity.
3) Number and size of the controlled substance containers.
4) Foreign port of exportation.
5) Approximate date of exportation.
6) Name of exporting carrier.
7) The name, address and business of the importer, transferor or trans-shipper.
8) The registration number of the above, if any.
9) U.S. port of entry.
10) Approximate date of entry.
11) Name, address and business of the consignee at foreign port of entry.
12) Shipping route from U.S. port to foreign port of entry.
13) Approximate date of receipt by the foreign consignee.
14) Signature and title of agent.

SPECIMEN

Sincerely

______________
Title

Attachment: Certified copy of export permit from ______________.
country

Sample notice of transshipment and in-transit shipment of controlled substances.

☆U.S. GOVERNMENT PRINTING OFFICE: 1981-341-234/1915

# END

8-31-82